DV MECHANICAL ADJUSTMENT MANUAL Ⅳ

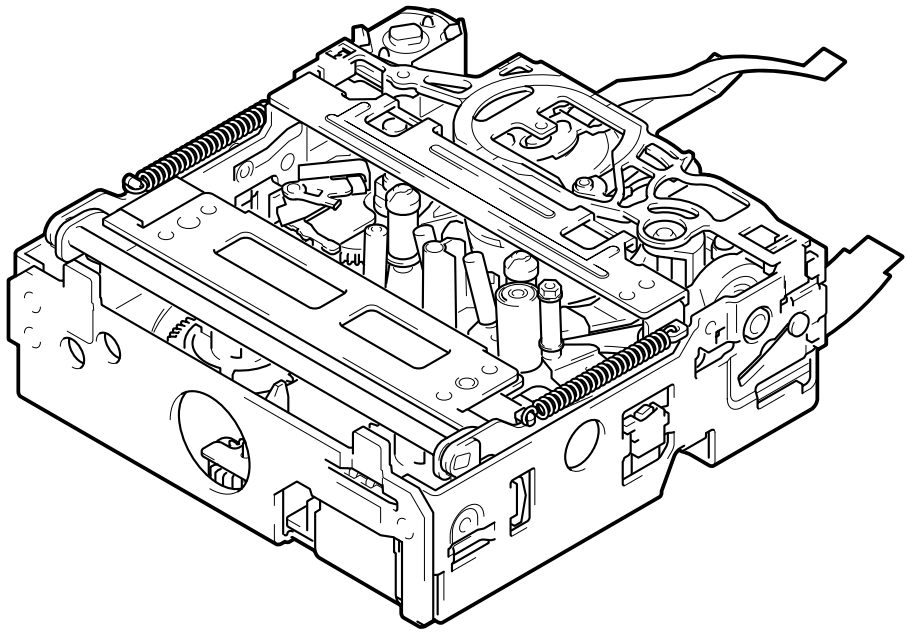
Ver 1.1 1999.10
with SUPPLEMENT-1 (9-974-050-82)

C MECHANISM

Mini DV Digital Video Cassette

File with the SERVICE MANUAL.

For details on schematic diagram, printed circuit boards diagram, and electric parts list regarding this mechanism deck, refer to the service manual for the unit mounting the C mechanism.



Digital MECHANISM

SONY

TABLE OF CONTENTS

1. EXPLODED VIEWS

1-1. Cassette Compartment, Drum and Reel Table Assembly ... 3
1-2. Tape Guide, Pinch Slider Assembly and Brake Slider Assembly ... 4
1-3. Each Gears and Loading / Capstan Motor Assembly ... 5

2. PARTS REPLACEMENT AND PREPARATION FOR ADJUSTMENT

• About Mode Selector II
2-1. Outline ... 6
2-2. Mechanism Condition (Position) Shifting Order List ... 6
2-3. Mode Selector II (J-6082-282-A) Connection ... 6
2-4. Service Jigs List ... 7

3. PARTS REPLACEMENT

3-1. Tape Fall Stopper, HC Roller and HC Arm ... 8
3-2. Drum Assembly and Drum Base Block Assembly ... 8
3-3. Damper Assembly, Cassette Compartment Assembly and Extension Spring ... 9
3-4. Reel Table (S) / (T) Assembly ... 10
3-5. Cassette Base Block Assembly, Gooseneck Gear Assembly and Relay Gear ... 10
3-6. TG1 Adjustment Plate Assembly, Tension Coil Spring (TG1), TG1 Arm Assembly, TG7 Retainer Spring and TG7 Arm Block Assembly ... 11
3-7. Brake Slider Assembly, Pinch Slider Assembly and Cam Gear ... 11
3-8. Pinch Arm Assembly, Torsion Spring (TG7LD), Pinch Press Arm and Eject Arm ... 12
3-9. GL Block Assembly, GL Driving Gear and HC Driving Arm ... 12
3-10. Capstan Motor, Conversion Pulley, Timing Belt and Holder ... 13
3-11. L Motor Block Assembly and FP-594 Flexible Board ... 14
3-12. Reset Arm (S), Brake (S), Brake Rack (S), Brake (T), Brake Gear (T), Brake Spring (T) and Extension Spring ... 15
3-13. Coaster (S) / (T) Assembly, GL Arm (S) / (T) Assembly, Guide Rail, GL Gear (S) / (T) and Torsion Spring (GLS) / (GLT) ... 16
3-14. L Motor Assembly, Motor Shield, FP-248 Flexible Board, TG1 Spring Hook, Spring Hook Fulcrum Base, Spring Hook Driving Arm, Worm Shaft, Deceleration Gear and Motor Holder ... 17

4. CHECK AND ADJUSTMENT

• Adjustment Position ... 18
• Adjustment Order (Flowchart) ... 18
4-1. FWD Position Checking and Adjustment ... 19
4-2. FWD Back Tension Checking and Adjustment ... 19
4-3. Reel Table (S) / (T) Torque Check ... 20
4-4. Preparation for Tape Path Checking and Adjustment ... 20
4-5. Track Checking and Adjustment ... 21
4-6. TG7 Slack Checking and Adjustment ... 21
4-7. Curl Checking and Adjustment ... 22
4-8. CUE and REV Check ... 22
4-9. Rising Check ... 22

5. PERIODIC CHECK

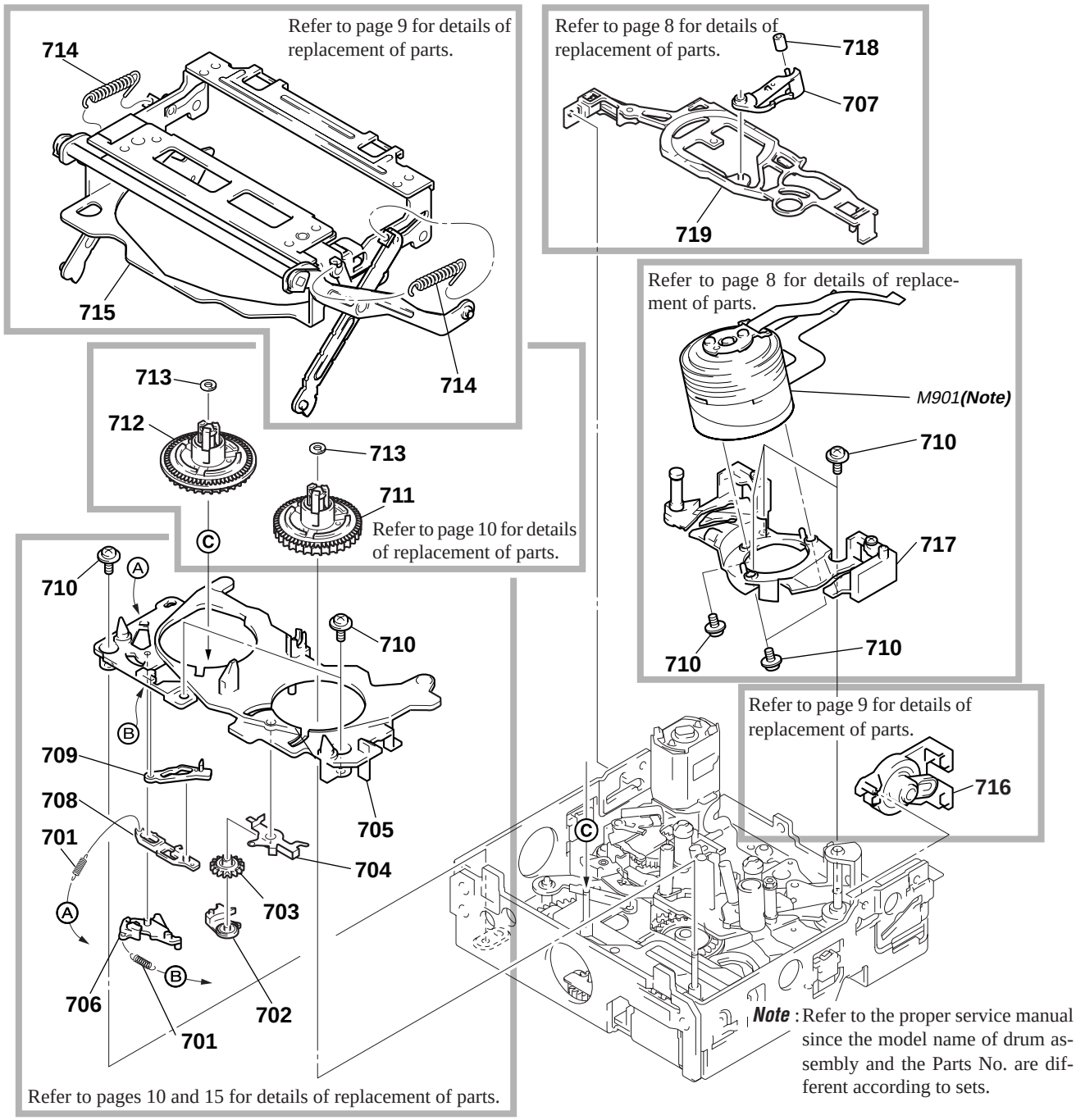
5-1. Cleaning of Rotary Drum Assembly ... 23
5-2. Cleaning of Tape Path System ... 23
5-3. Periodic Checks ... 23

1. EXPLODED VIEWS

NOTE:

- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.

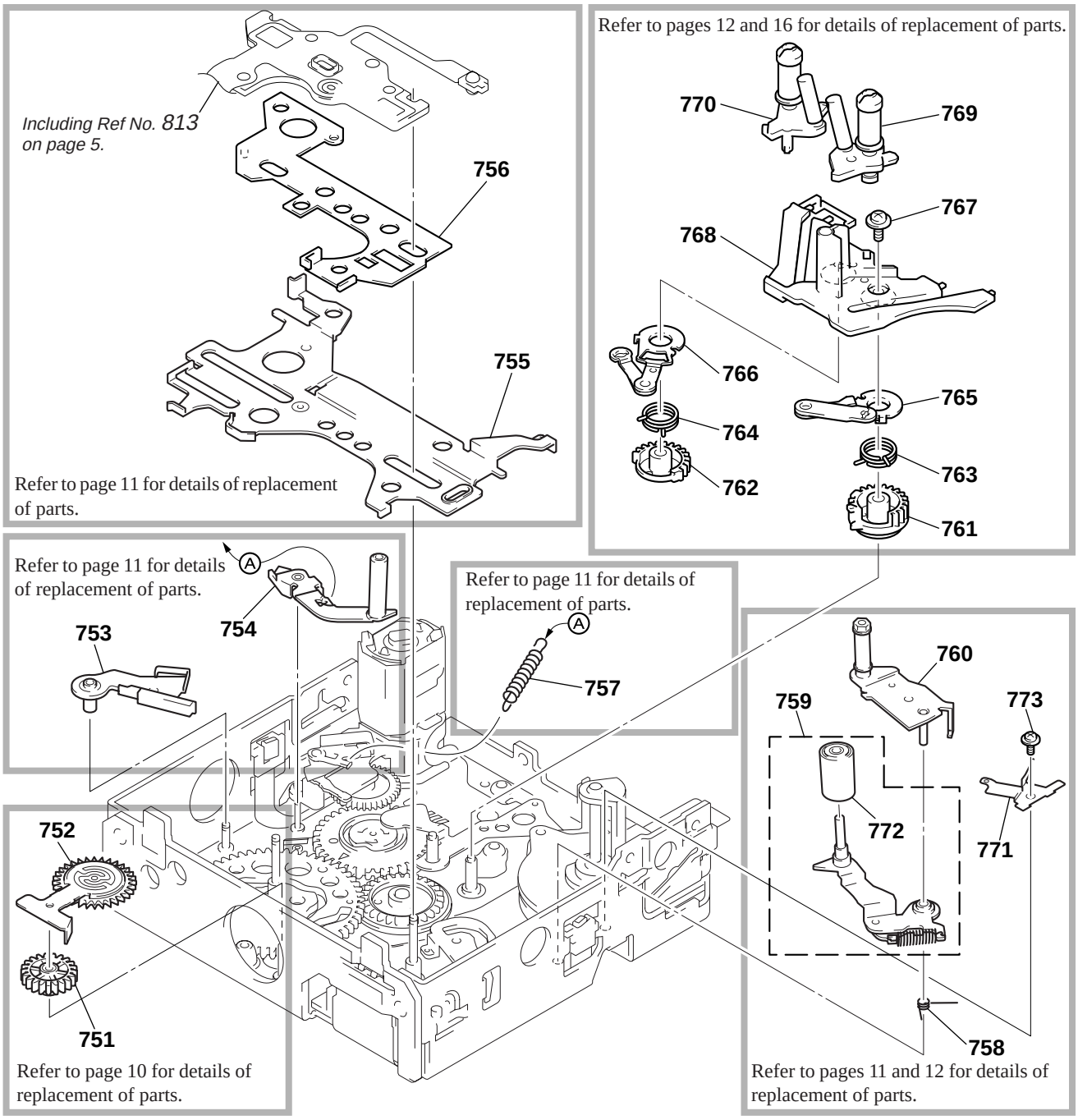
1-1. CASSETTE COMPARTMENT, DRUM AND REEL TABLE ASSEMBLY



Note : Refer to the proper service manual since the model name of drum assembly and the Parts No. are different according to sets.

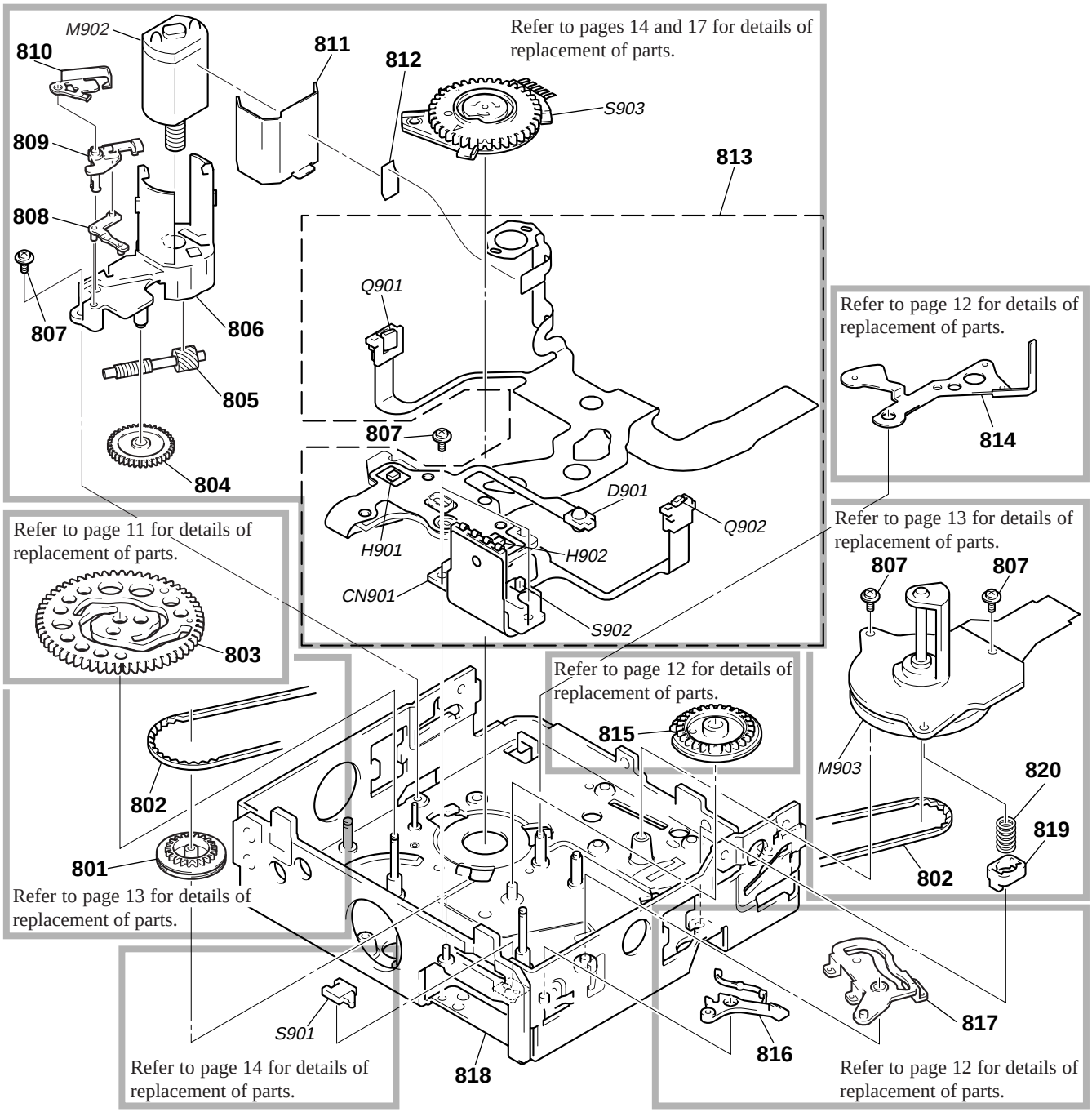
Ref. No.	Part No.	Description	Remark
701	3-988-312-01	SPRING, EXTENSION	
702	3-988-220-01	BRAKE (T)	
703	3-988-221-01	GEAR (T), BRAKE	
704	3-988-222-01	SPRING (T), BRAKE	
705	3-988-215-02	BASE, CASSETTE	
706	3-988-217-01	ARM (S), RESET	
707	3-988-281-02	ARM, HC	
708	3-988-219-01	RACK (S), BRAKE	
709	3-988-218-01	BRAKE (S)	
710	3-947-503-01	SCREW (M1.4X2.5)	
711	X-3948-445-1	TABLE (T) ASSY, REEL	
712	X-3948-444-1	TABLE (S) ASSY, REEL	
713	3-989-465-01	WASHER, STOPPER	
714	3-988-298-01	SPRING EXTENSION	
715	X-3948-441-2	CASSETTE COMPARTMENT ASSY	
716	X-3948-443-2	DAMPER ASSY	
717	A-7093-612-A	DRUM BASE BLOCK ASSY	
718	3-988-282-01	ROLLER, HC	
719	3-988-283-01	STOPPER, TAPE FALL	
M901	***Note***	DRUM ASSY	

1-2. TAPE GUIDE, PINCH SLIDER ASSEMBLY AND BRAKE SLIDER ASSEMBLY



Ref. No.	Part No.	Description	Remark
751	3-988-263-01	GEAR, RELAY	
752	X-3948-442-2	GEAR ASSY, GOOSENECK	
753	X-3948-435-2	PLATE ASSY, TG1 ADJUSTMENT	
754	X-3948-434-1	ARM ASSY, TG1	
755	X-3948-428-4	SLIDER ASSY, PINCH	
756	X-3948-766-1	SLIDER ASSY, BRAKE	
757	3-988-270-01	SPRING (TG1), TENSION COIL	
758	3-988-233-01	SPRING (TG7LD), TORSION	
759	X-3948-433-2	ARM ASSY, PINCH	
760	A-7093-501-A	ARM BLOCK ASSY, TG7	
761	3-988-257-02	GEAR (T), GL	
762	3-988-252-03	GEAR (S), GL	
763	3-988-258-01	SPRING (GLT), TORSION	
764	3-988-253-01	SPRING (GLS), TORSION	
765	X-3948-440-1	ARM (T) ASSY, GL	
766	X-3948-439-3	ARM (S) ASSY, GL	
767	3-947-503-01	SCREW (M1.4X2.5)	
768	3-988-242-01	RAIL, GUIDE	
769	X-3948-438-3	COASTER (T) ASSY	
770	X-3948-437-1	COASTER (S) ASSY	
771	3-988-690-02	SPRING, TG7 RETAINER	
772	X-3748-630-2	ROLLER ASSY (DIA. 5.6), PINCH	
773	3-050-334-01	SCREW (M1.4X5)	

1-3. EACH GEARS AND LOADING / CAPSTAN MOTOR ASSEMBLY



Ref. No.	Part No.	Description	Remark
801	3-988-274-01	PULLEY, CONVERSION	
802	3-988-276-02	BELT, TIMING	
803	3-988-216-01	GEAR, CAM	
804	3-988-211-01	GEAR, DECELERATION	
805	3-988-210-01	SHAFT, WORM	
806	3-988-207-01	HOLDER, MOTOR	
807	3-947-503-01	SCREW (M1.4X2.5)	
808	3-988-303-01	ARM, SPRING HOOK DRIVING	
809	3-988-271-01	BASE, SPRING HOOK FULCRUM	
810	3-988-302-01	HOOK, TG1 SPRING	
811	3-988-208-01	SHIELD, MOTOR	
812	1-657-785-11	FP-248 FLEXIBLE BOARD (DEW SENSOR)	
813	A-7073-418-A	FP-594 BOARD, COMPLETE	
814	3-988-280-03	ARM, HC DRIVING	
815	3-988-239-01	GEAR, GL DRIVING	

Ref. No.	Part No.	Description	Remark
816	3-988-223-01	ARM, EJECT	
817	3-988-224-01	ARM, PINCH PRESS	
818	X-3948-431-4	CHASSIS ASSY	
819	3-050-170-01	HOLDER	
820	3-051-787-02	SPRING (CAP), COMPRESSION COIL	
CN901	1-784-723-11	PIN, CONNECTOR 4P	
D901	8-719-067-13	DIODE GL453K	
H901	8-719-061-28	DIODE HW-105C-FT-V (S REEL SENSOR)	
H902	8-719-061-28	DIODE HW-105C-FT-V (T REEL SENSOR)	
M901	X-3948-346-1	MOTOR ASSY, L (LOADING)	
M903	8-835-606-01	MOTOR, DC SCD15A/C-NP (CAPSTAN)	
Q901	8-729-907-25	PHOTO TRANSISTOR PT4850F (TAPE END)	
Q902	8-729-907-25	PHOTO TRANSISTOR PT4850F (TAPE TOP)	
S901	1-771-039-51	SWITCH, PUSH (C IN SW)	
S902	1-572-719-32	SWITCH, PUSH (1 KEY) (REC PROOF)	
S903	1-771-325-11	ENCODER, ROTARY (SWITCH) (MODE)	

2. PARTS REPLACEMENT AND PREPARATION FOR ADJUSTMENT

• About Mode Selector II

2-1. OUTLINE

This unit is a mechanism drive tool which supplements the maintenance of each mechanism deck. Its functions are described below.

1. Manual test

A mode which drives the motor only while the switch is ON. It enables the operator to control the motor as desired.

2. Step test

A mode which drives the motor until the current condition detected by the sensor changes to another condition. It enables the movements made by the motor in each operation to be controlled while being checked.

3. Auto test

A mode that checks if the mechanism operates normally according to the condition shift table recorded in the unit for each mechanism deck. All the conditions of the decks are checked through a series of operations.

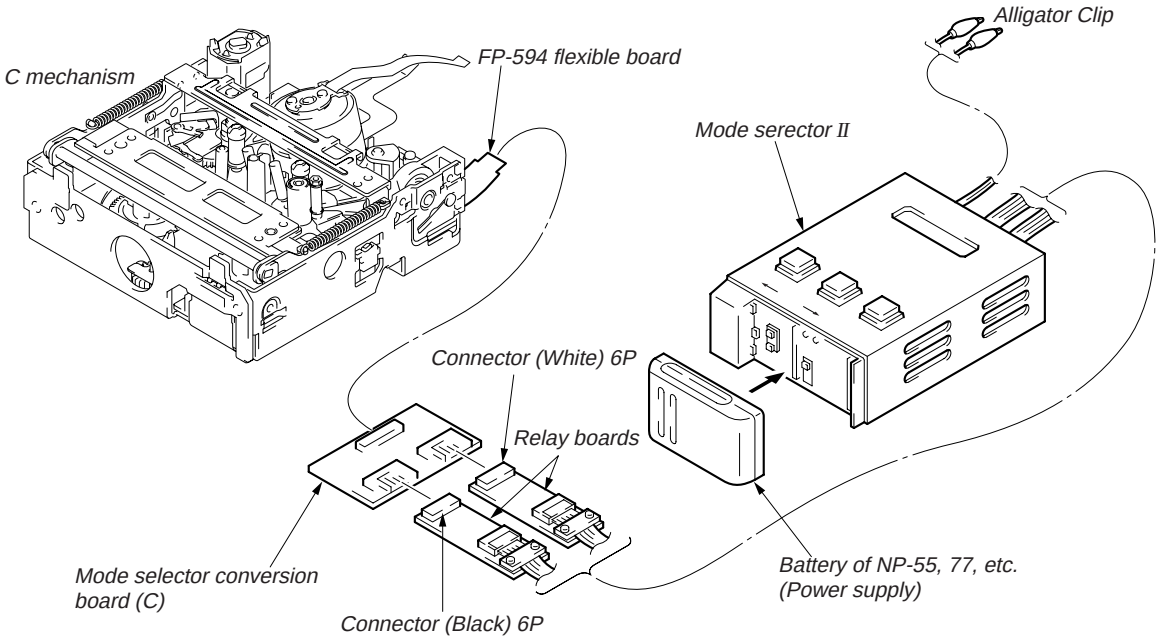
An error message is displayed if incorrect shifts and conditions are detected and operations are stopped.

2-2. MECHANISM CONDITION (POSITION) SHIFTING ORDER LIST

After selecting the mechanism deck, select one of the two test modes other than the auto test, and press the RVS and FF button to specify the mechanism state (position).

Code / MD name					C mechanism
A	B	C	D		
1	1	1	0	1	EJECT
1	0	1	0	2	ULE
1	0	1	1	3	SR
1	0	0	1	4	HL
0	1	1	1	5	LE
0	0	1	1	6	STOP
1	1	0	1	7	RP
1	1	0	0	8	REW

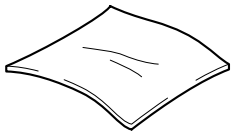
2-3. MODE SELECTOR II (A-6082-282-A) CONNECTION



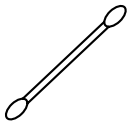
2-4. SERVICE JIGS LIST

J-1. Cleaning fluid
(Y-2031-001-0)

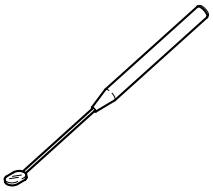
J-2. Wiping cloth
(7-741-900-53)



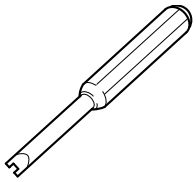
J-3. Super fine applicator
(Made by NIPPON APPLICATOR(P752D))



J-4. Mirror (Small oval type)
(J-6082-840-A)

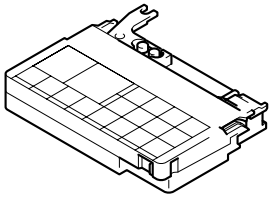


J-5. Screwdriver for tape path
(J-6082-026-A)

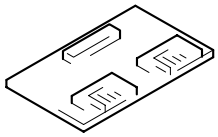


J-6. Torque driver
(J-9049-330-A)

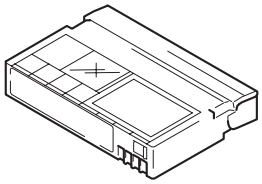
J-7. TG1 adjustment jig
(FWD position adjustment)
(J-6082-420-A)



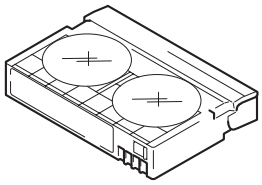
J-8. Mode selector conversion board (C)
(J-6082-417-A)



J-9. Tracking tape (XH2-1) (NTSC/PAL)
(8-967-997-01)

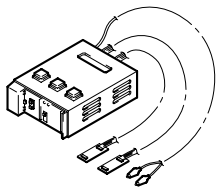


J-10. Mini DV torque cassette
(J-6082-360-A)

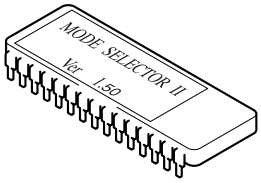


J-11. Adjusting remote commander
(RM-95 remodeled partly : Note 1)
(J-6082-053-B)

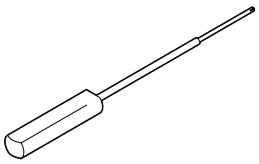
J-12. Mode selector II
(J-6082-282-A)



J-13. Mode selector II ROM
(Corresponds to C mechanism: Note 2)
(J-6082-314-D)



J-14. Bending stick
(J-6082-419-A)



Note 1 : If the micro processor IC in the adjusting remote commander is not the new micro processor (UPD7503G-C56-12), the pages cannot be switched. In this case, replace with the new micro processor (8-759-148-35).

Note 2 : ROM for version upgrading to allow use of the mode selector II with the C mechanism.

Screw tightening torque tolerance.
0.0098 N.m (0.1 kg.cm)

3. PARTS REPLACEMENT

- **Precautions**

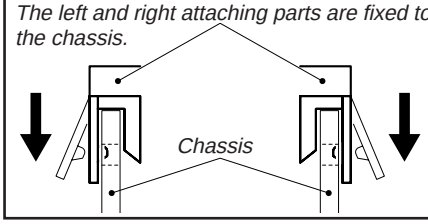
For details on removing the cabinet and board, refer to "DISASSEMBLY" in the respective service manuals. For details on the replacement of mechanism parts (removal or attaching), refer to the respective flowcharts, and perform the procedure given.

3-1. TAPE FALL STOPPER, HC ROLLER AND HC ARM

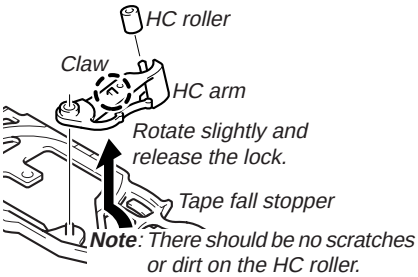
Removing method : Spread out the left and right attaching parts and remove them upwards.
Attaching method : Refer to the Details diagram.

Details diagram on attachment of Tape Fall Stopper

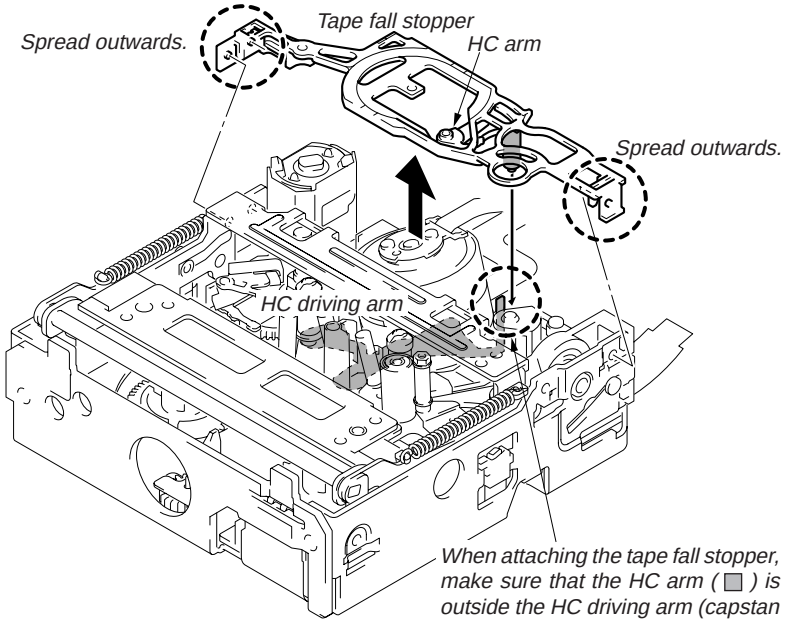
The left and right attaching parts are fixed to the chassis.



Details diagram on removal and attachment of HC Arm and HC Roller



***Note**: There should be no scratches or dirt on the HC roller.*


Spread outwards.
Tape fall stopper
HC arm
Spread outwards.
HC driving arm
When attaching the tape fall stopper, make sure that the HC arm (□) is outside the HC driving arm (capstan motor side).

3-2. DRUM ASSEMBLY AND DRUM BASE BLOCK ASSEMBLY

Remove the

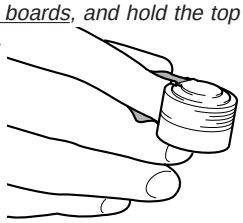
"3-1. Tape Fall Stopper".

Removing method : Remove in the order of ①→②→③→④.
Attaching method : Attach in the order of ④→③→②→①.
(Note:Tighten the screws in the order of Ⓐ, Ⓑ, and Ⓒ.)

After attaching all the parts, refer to the flowchart on page 18, and perform the adjustments from Starting adjustments-2.

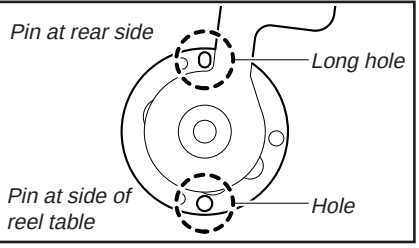
Holding the Drum Assembly

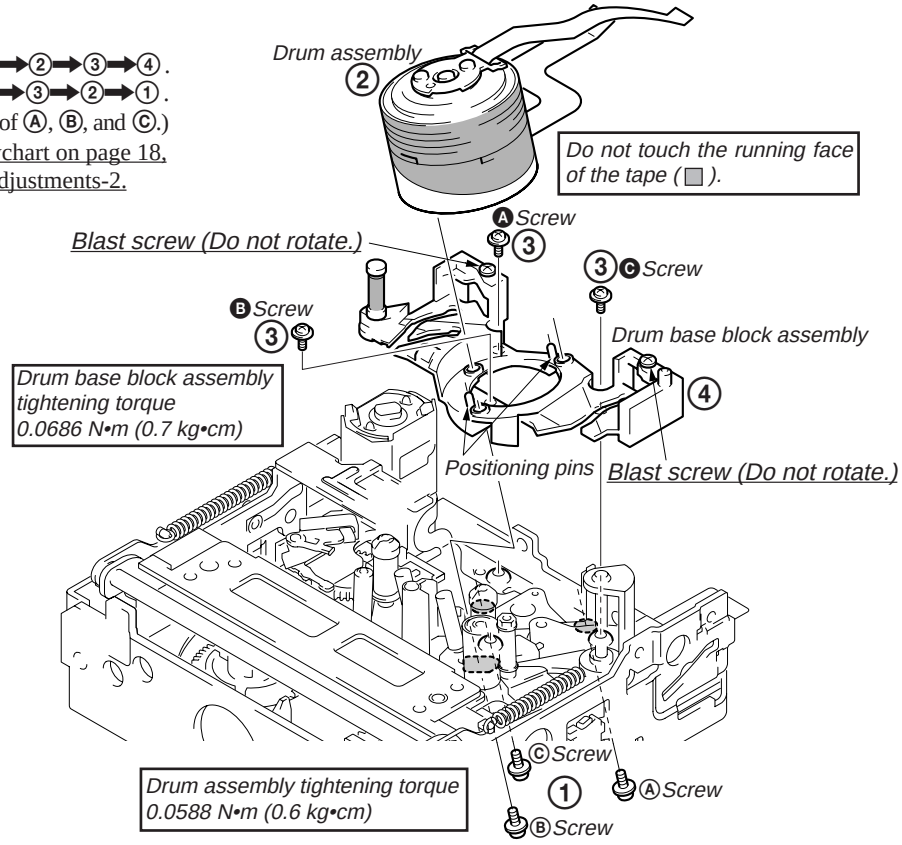
Insert your second finger between the two flexible boards, and hold the top and bottom boards.



***Note**: Do not touch the running face of the drum assembly.*

Details diagram on attachment of Drum Assembly (Positioning pins)



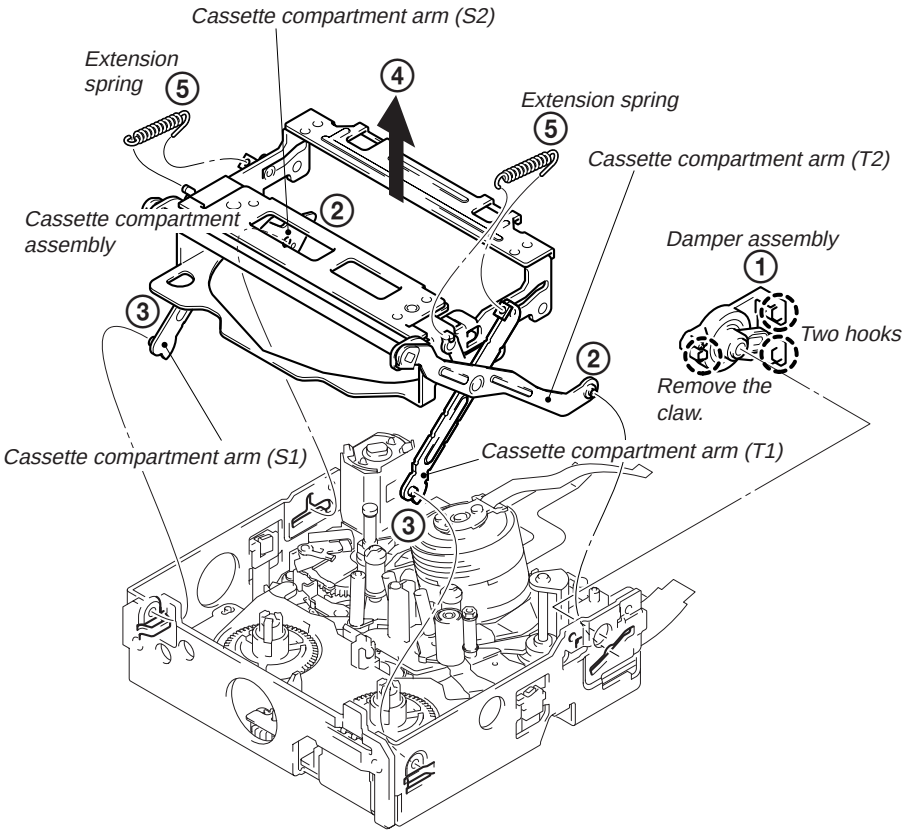


3-3. DAMPER ASSEMBLY, CASSETTE COMPARTMENT ASSEMBLY AND EXTENSION SPRING

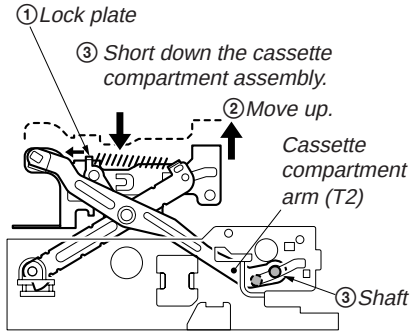
Remove the

"3-1. Tape Fall Stopper".

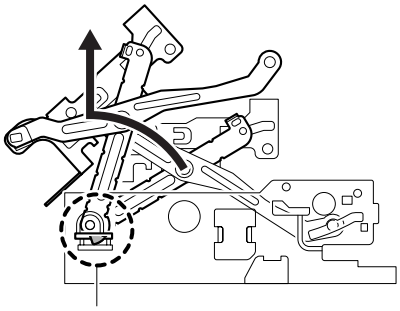
Removing method : Remove in the order of ①➡②➡③➡④➡⑤ .



Details diagram on removal of Cassette Compartment Assembly



1. Pull the lock plate in the arrow direction.
2. Move up the cassette compartment assembly.
3. While shorting-down the cassette compartment assembly, move the arms (T2) and (S2) inside, and remove the left and right shafts.



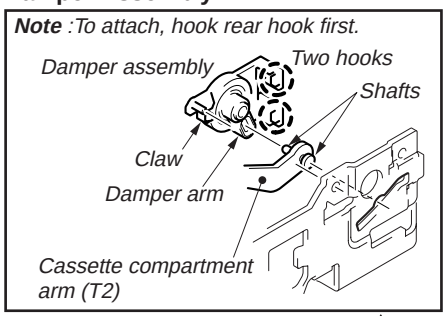
4. Move forward until the ▢ part disconnects.

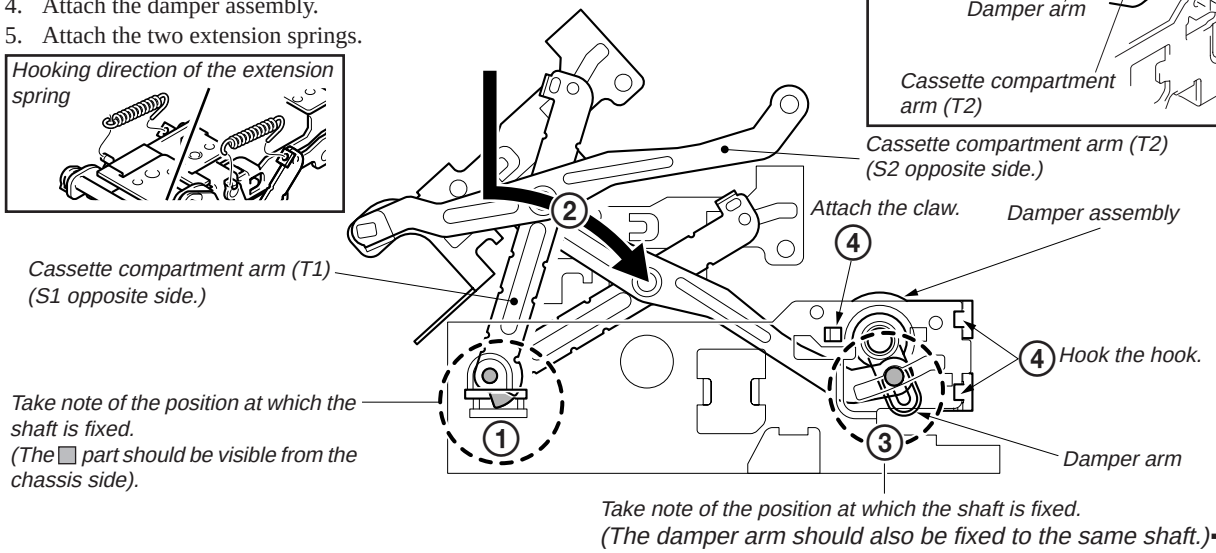
Attaching method : Attach in the order of ①➡②➡③➡④ .

Note : Be careful not to deform the cassette compartment.

1. Insert the left and right shafts of the cassette compartment arms (S1) and (T1) into the chassis.
2. Push down the cassette compartment assembly in the direction of arrow ②.
3. Insert the left and right shafts of the cassette compartment arms (S2) and (T2) into the chassis.
4. Attach the damper assembly.
5. Attach the two extension springs.

Details diagram on attachment of Damper Assembly




Cassette compartment arm (T2) (S2 opposite side.)
Attach the claw.
Damper assembly
②
④
Cassette compartment arm (T1) (S1 opposite side.)
④ Hook the hook.
Take note of the position at which the shaft is fixed. (The ▢ part should be visible from the chassis side).
①
③
Damper arm
Take note of the position at which the shaft is fixed. (The damper arm should also be fixed to the same shaft.)

Screw tightening torque tolerance.
0.0098 N.m (0.1 kg.cm)

3-4. REEL TABLE (S) / REEL TABLE (T) ASSEMBLY

Remove the

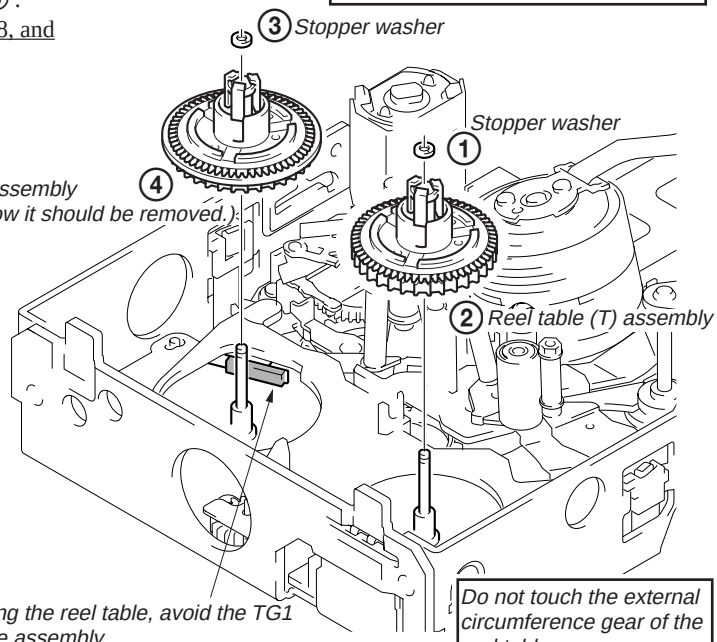
"3-1. Tape Fall Stopper"

and "3-3. Damper Assembly and Cassette Compartment Assembly".

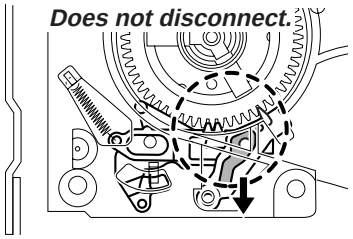
Removing method : Remove in the order of ①➡②➡③➡④ .
Attaching method : Attach in the order of ②➡①➡④➡③ .

After attaching all the parts, refer to the flowchart on page 18, and perform the adjustments from Starting adjustments-1.

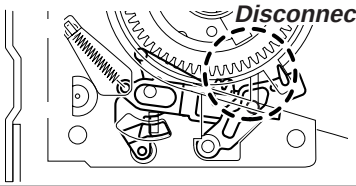
Use only new washers. Do not reuse washers that have been removed once.


③ Stopper washer
Stopper washer
①
④
Reel table (S) assembly
(Take note of how it should be removed.)
② Reel table (T) assembly
When attaching the reel table, avoid the TG1 adjusting plate assembly.
(Be careful not to scratch the tension regulator pad.)
Do not touch the external circumference gear of the reel table.

Details diagram on removal of Reel Table (S) Assembly



The gear is engaged with the reel table, and does not disconnect.
Pull the ■ part with an object with a pointed end to disengage.



3-5. CASSETTE BASE BLOCK ASSEMBLY, GOOSENECK GEAR ASSEMBLY AND RELAY GEAR

Remove the

"3-1. Tape Fall Stopper"

and "3-3. Damper Assembly and Cassette Compartment Assembly".

Removing method : Remove in the order of ①➡②➡③➡④➡⑤➡⑥ .
Attaching method : Attach in the order of ⑥➡⑤➡④➡③➡②➡① .

Details diagram on removal and attachment of LED

Removing : ➡
Attaching : ⇦

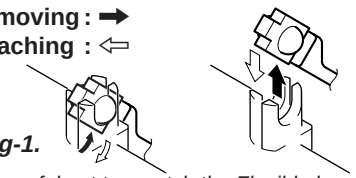
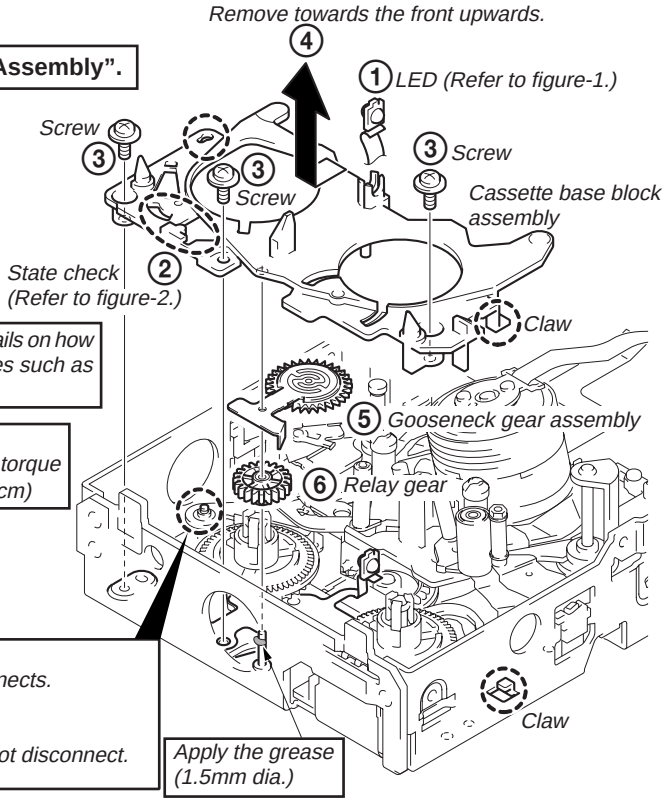


Fig-1.

Be careful not to scratch the Flexible board.



Details diagram on State Checking of Brake (S)

The gear is engaged with the reel table, and does not disconnect.
Pull the ■ part with an object with a pointed end to disengage.

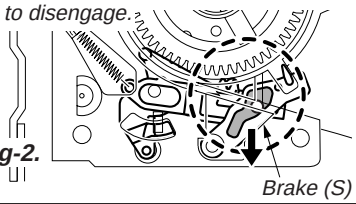


Fig-2.

Screw tightening torque tolerance.
0.0098 N.m (0.1 kg.cm)

3-6. TG1 ADJUSTMENT PLATE ASSEMBLY, TENSION COIL SPRING (TG1), TG1 ARM ASSEMBLY, TG7 RETAINER SPRING AND TG7 ARM BLOCK ASSEMBLY

Remove the

"3-1. Tape Fall Stopper",

"3-3. Damper Assembly and Cassette Compartment Assembly"

and "3-5. Cassette Base Block Assembly".

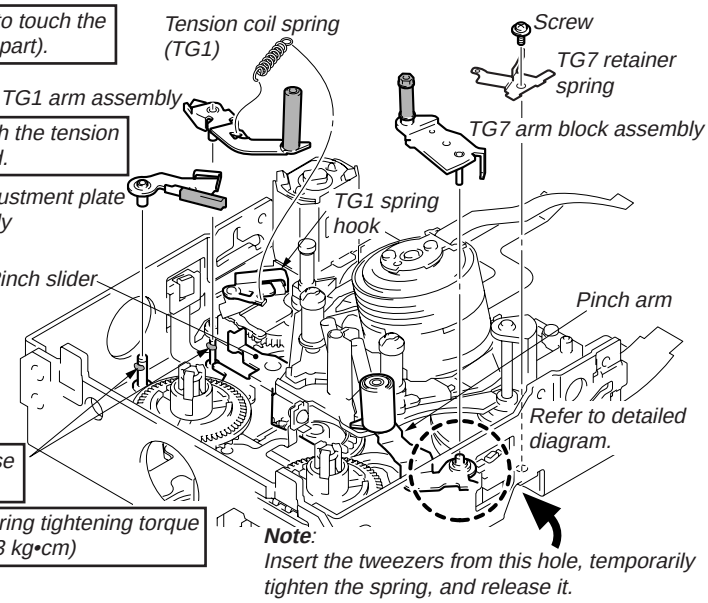
Removing method : Remove the desired parts as shown in the figure.

Attaching method : Refer to the detailed diagrams.

After attaching all the parts, refer to the flowchart on page 18, and perform the adjustments from Starting adjustments-1.

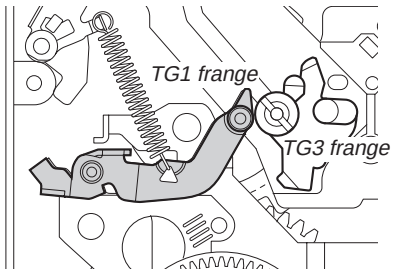
Be careful not to touch the tape guide (□ part).

Do no scratch the tension regulator pad.


Tension coil spring (TG1)
Screw
TG7 retainer spring
TG1 arm assembly
TG7 arm block assembly
TG1 adjustment plate assembly
TG1 spring hook
Pinch slider
Pinch arm
Refer to detailed diagram.
Apply the grease (1.5mm dia.)
TG7 retainer spring tightening torque 0.0294 N•m (0.3 kg•cm)
Note:
Insert the tweezers from this hole, temporarily tighten the spring, and release it.

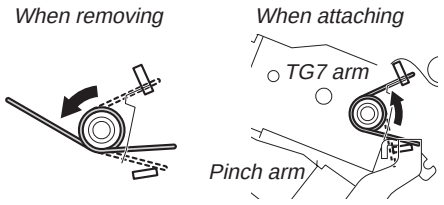
Details diagram on attachment of TG1 Arm Assembly

Attach so that the TG1 flange is almost parallel to the TG3 flange.



Details diagram on removal and attachment of TG7 arm Block Assembly

Remove the tension of the spring attached to the TG7 arm. To attach, temporarily attach the spring to the pinch arm from the chassis hole using a pair of tweezers.



3-7. BRAKE SLIDER ASSEMBLY, PINCH SLIDER ASSEMBLY AND CAM GEAR

Remove the

"3-1. Tape Fall Stopper",

"3-3. Damper Assembly and Cassette Compartment Assembly",

"3-4. Reel Table (S) / Reel Table (T) Assembly",

"3-5. Cassette Base Block Assemlby, Gooseneck Gear Assembly and Relay Gear"

and "3-6. TG1 Arm Assembly and TG1 Adjustment Plate Assembly".

Removing method : Remove in the order of ①➡②➡③➡④.

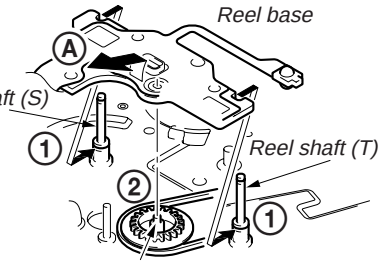
Attaching method : Attach in the order of ④➡③➡②➡①.

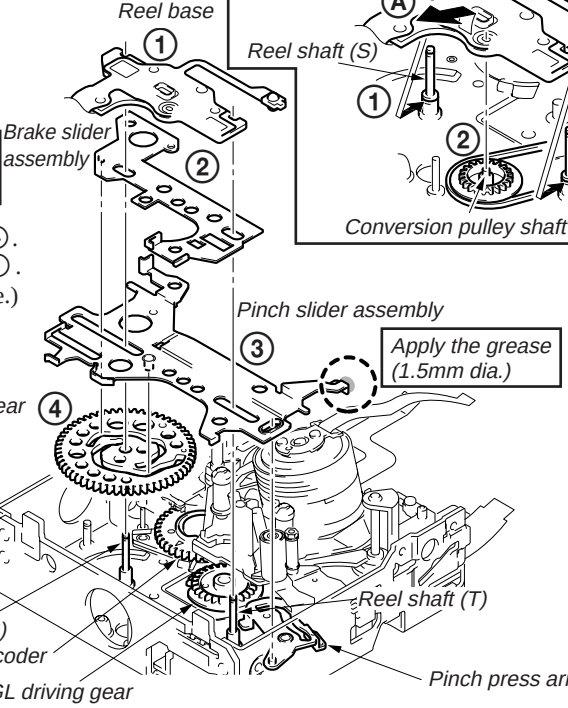
(Be sure to adjust the position and phase.)

Details diagram on removal and attachment of Reel Base

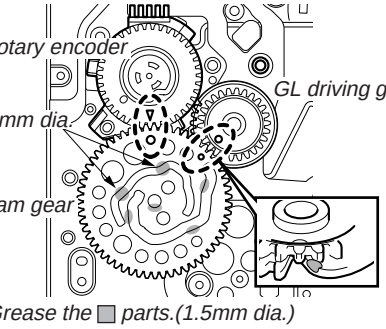
Removing method : Move upwards in the direction of arrow Ⓐ.

Attaching method : Attach in the order of ①➡②.





Detailed diagram on the adjusting the phase of each gear, and parts to be greased.



Screw tightening torque tolerance.
0.0098 N.m (0.1 kg.cm)

3-8. PINCH ARM ASSEMBLY, TORSION SPRING (TG7LD), PINCH PRESS ARM AND EJECT ARM

Remove the

"3-1. Tape Fall Stopper",

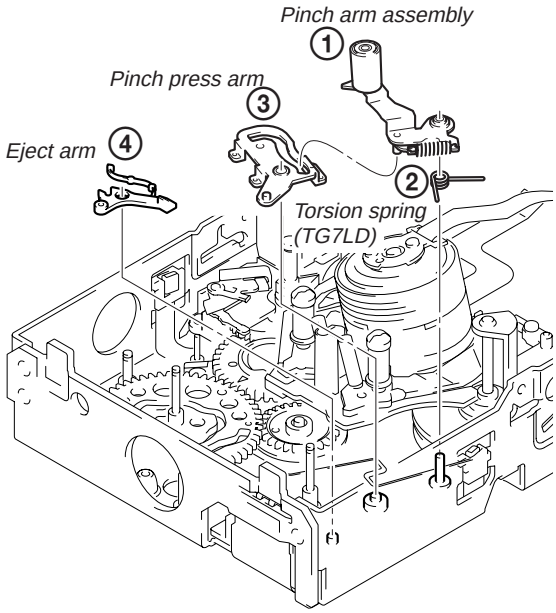
"3-3. Damper Assembly and Cassette Compartment Assembly",

"3-4. Reel Table (S) / Reel Table (T) Assembly",

"3-5. Cassette Base Block Assembly, Gooseneck Gear Assembly and Relay Gear",

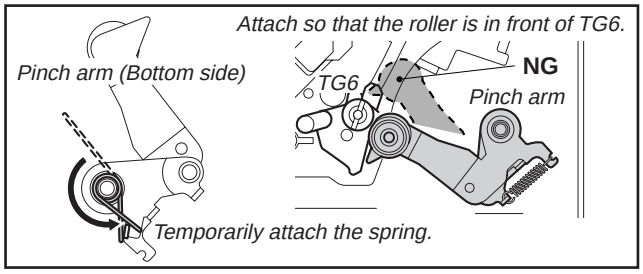
"3-6. TG1 Arm Assembly, TG1 Adjustment Plate Assembly and TG7 Arm Block Assembly"

and "3-7. Brake Slider Assembly and Pinch Slider Assembly".

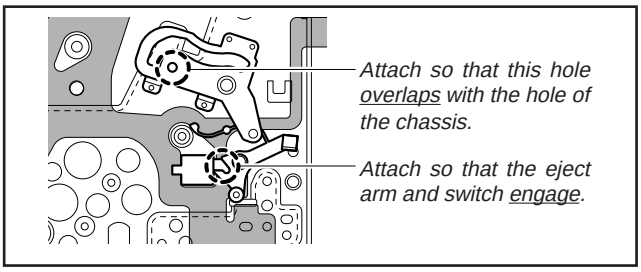


Removing method : Remove in the order of ①→②→③→④.
Attaching method : Attach in the order of ④→③→②→①.
(Be sure to adjust the position and phase.)

Details diagram on attachment of Pinch Arm Assembly and Torsion Spring (TG7LD)



Details diagram on adjustment or Position and Phase



3-9. GL BLOCK ASSEMBLY, GL DRIVING GEAR AND HC DRIVING ARM

Remove the

"3-1. Tape Fall Stopper",

"3-3. Damper Assembly and Cassette Compartment Assembly",

"3-2. Drum Assembly and Drum Base Block Assembly",

"3-4. Reel Table (S) / Reel Table (T) Assembly",

"3-5. Cassette Base Block Assembly, Gooseneck Gear Assembly and Relay Gear",

"3-6. TG1 Arm Assembly, TG1 Adjustment Plate Assembly and TG7 Arm Block Assembly",

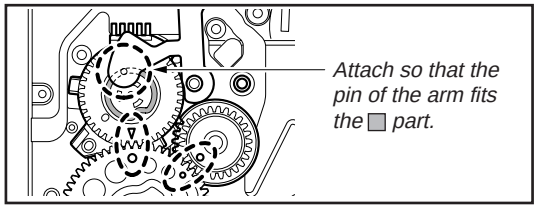
"3-7. Brake Slider Assembly, Pinch Slider Assembly and Cam Gear"

and "3-8. Pinch Arm Assembly".

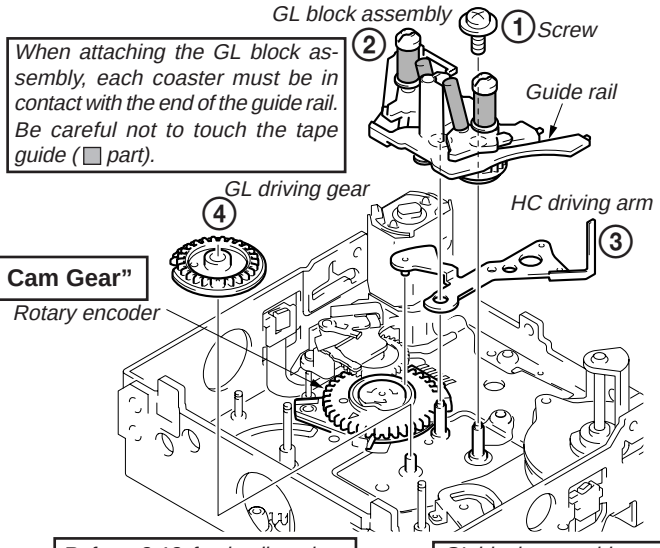
Removing method : Remove in the order of ①→②→③→④.
Attaching method : Attach in the order of ④→③→②→①.
(Be sure to adjust the position and phase.)

<u>After attaching all the parts, refer to the flowchart on page 18, and perform the adjustments from Starting adjustments-1.</u>

Details diagram on adjustment of Position and Phase



When attaching the GL block assembly, each coaster must be in contact with the end of the guide rail. Be careful not to touch the tape guide (□ part).



Refer to 3-13. for details on how to replace assemblies such as the guide rail.

GL block assembly tightening torque 0.0686 N•m (0.7 kg•cm)

Screw tightening torque tolerance.
0.0098 N.m (0.1 kg.cm)

3-10. CAPSTAN MOTOR, CONVERSION PULLEY, TIMING BELT AND HOLDER

Remove the

"3-1. Tape Fall Stopper",

"3-3. Damper Assembly and Cassette Compartment Assembly",

"3-2. Drum Assembly and Drum Base Block Assembly",

"3-4. Reel Table (S) / Reel Table (T) Assembly",

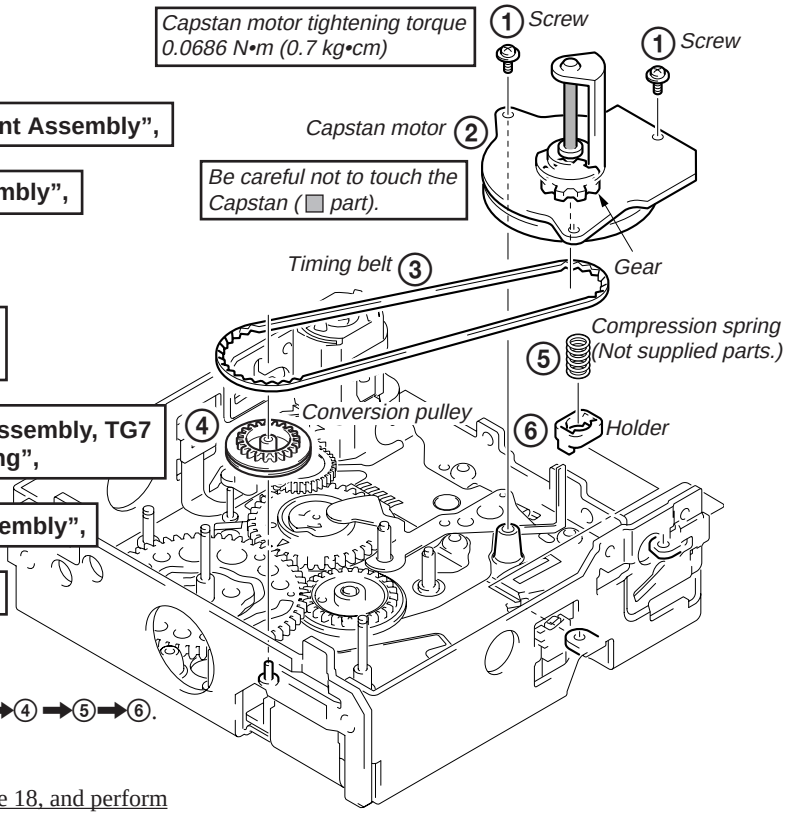
"3-5. Cassette Base Block Assembly, Gooseneck Gear Assembly and Relay Gear",

"3-6. TG1 Arm Assembly, TG1 Adjustment Plate Assembly, TG7 Arm Block Assembly and TG7 Retainer Spring",

"3-7. Brake Slider Assembly and Pinch Slider Assembly",

"3-8. Pinch Arm Assembly and Pinch Press Arm"

and "3-9. GL Block Assembly".

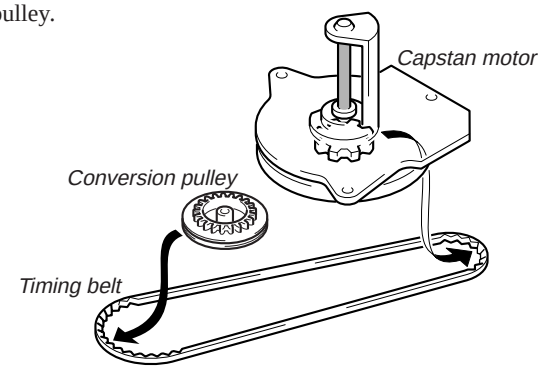


Removing method : Remove in the order of ①➡②➡③➡④➡⑤➡⑥.
Attaching method : Refer to the following diagram.

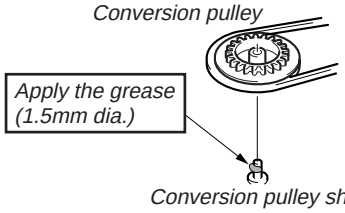
After attaching all the parts, refer to the flowchart on page 18, and perform the adjustments from Starting adjustments-1.

Attachment of Timing Belt

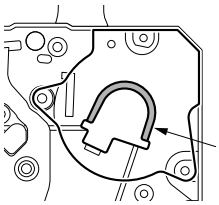
1. Refer to "Removing method", and attach the compression spring (TG7) and holder to the chassis.
2. Attach the timing belt to the capstan motor and the conversion pulley.



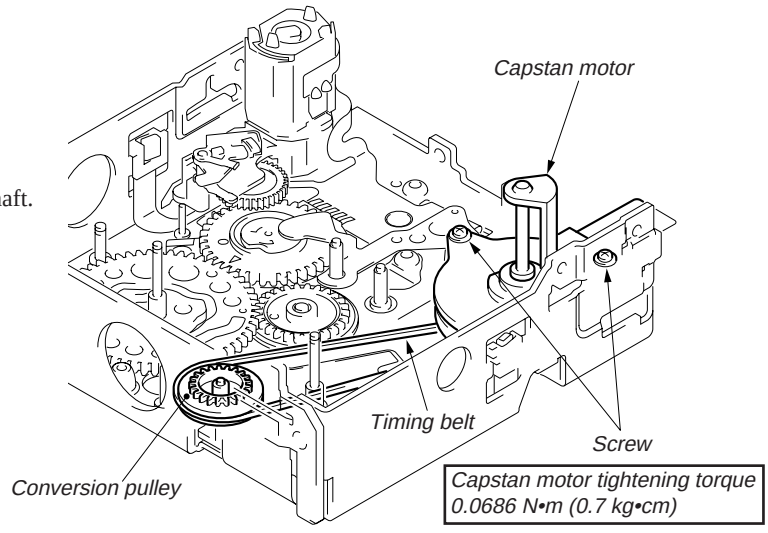
3. Attach the conversion pulley to the conversion pulley shaft. Attach the capstan motor to the chassis.
4. Secure the capstan motor with the screw.



5. After attaching, pull the timing belt lightly, and check that the movements of the conversion pulley and gear at the back of the capstan motor are linked.



When the capstan motor is screwed on with the belt protruding from the indented part of the part, the belt will become fixed.



Screw tightening torque tolerance.
0.0098 N.m (0.1 kg.cm)

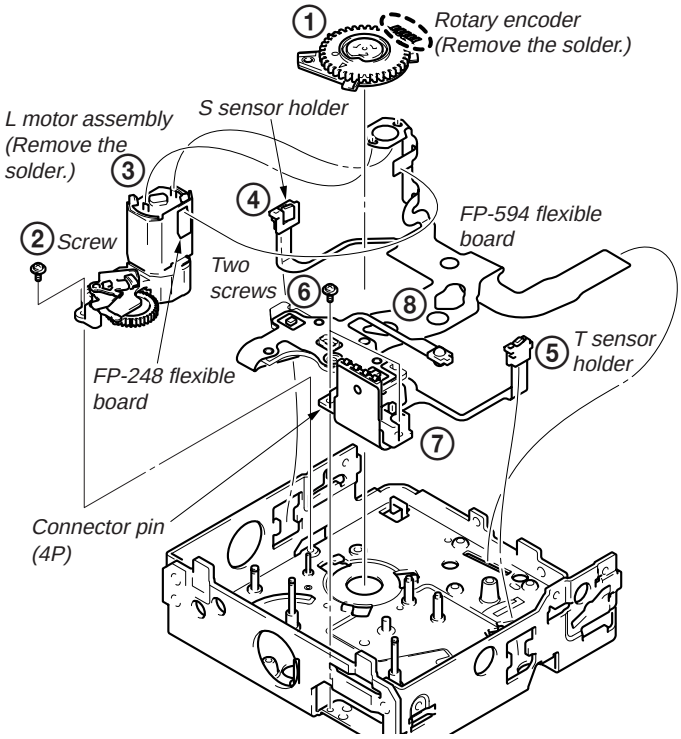
3-11. L MOTOR BLOCK ASSEMBLY AND FP-594 FLEXIBLE BOARD

First, remove

all parts from 3-1 to 3-10.

Removing method : Remove in the order of ①➡②➡③➡④➡⑤➡⑥➡⑦➡⑧ .

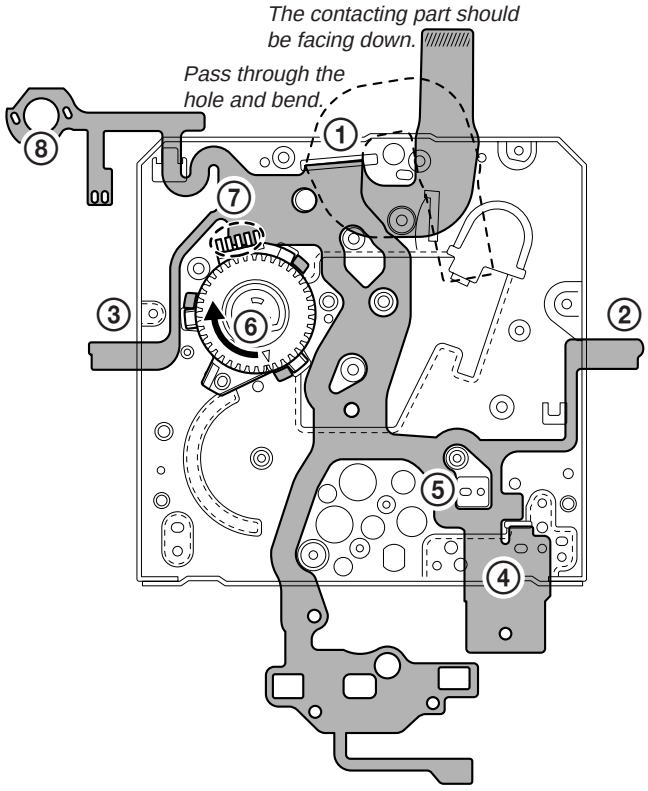
(For details on how to remove each part, refer to the detailed diagram.)



Attaching method :

Refer to the following diagram, for attaching the FP-594 flexible board, and attaching the parts in the order of ①➡②➡③➡④➡⑤➡⑥➡⑦➡⑧ .

(For attaching each part, refer to each detailed diagram.)



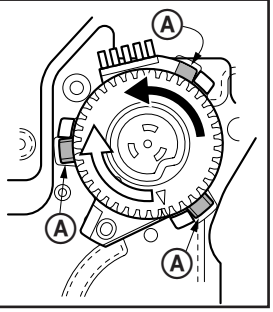
Detailed diagram on removal and attachment of Rotary Encoder

Removing method :

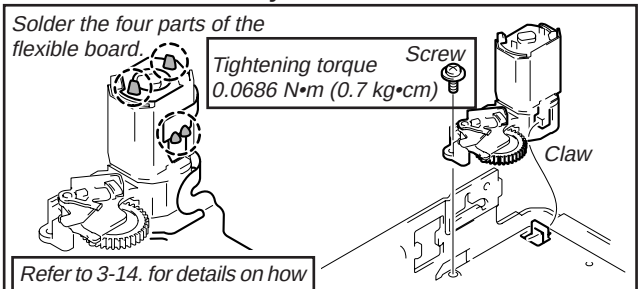
Remove the solder, and rotate the rotary encoder in the ⬅ direction. (The three parts of part Ⓐ should be visible.)

Attaching method :

Rotate the rotary encoder in the ⇦ direction. (The three parts of part Ⓐ should be hidden.) And then solder.

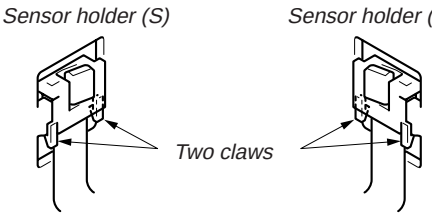


Detailed diagram on removal and attachment of L Motor Block Assembly

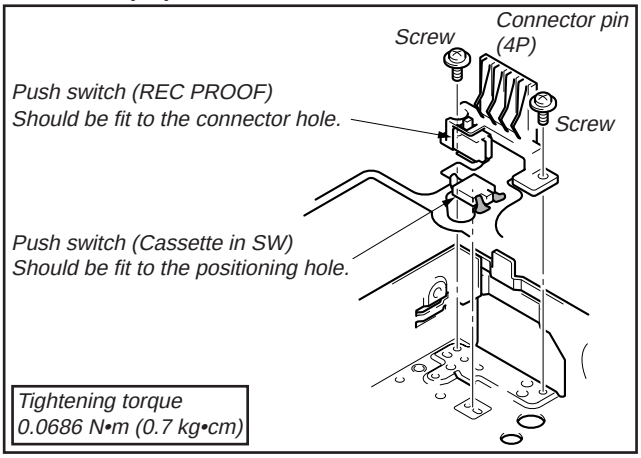


Refer to 3-14. for details on how to replace assemblies such as the TG1 spring hook.

Detailed diagram on removal and attachment of Sensor Holder (S) / (T)



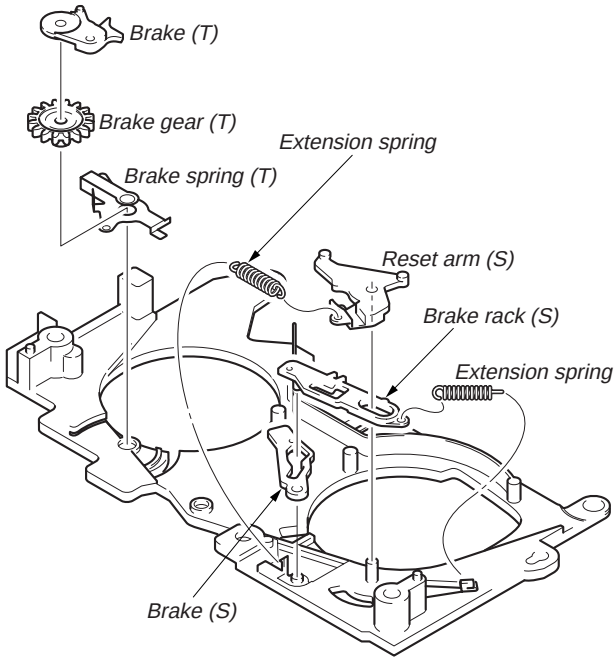
Detailed diagram on removal and attachment of Connector Pin (4P)



Tightening torque
0.0686 N•m (0.7 kg•cm)

3-12. RESET ARM (S), BRAKE (S), BRAKE RACK (S), BRAKE (T), BRAKE GEAR (T), BRAKE SPRING (T) AND EXTENSION SPRING

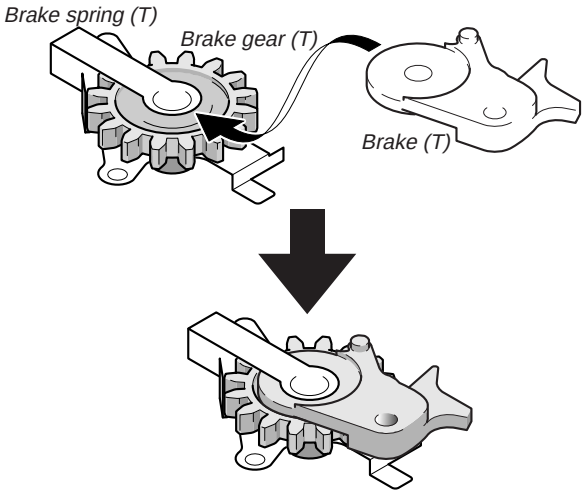
Removal or attaching method



Detailed diagram on removal and attachment of Brake (T), Brake Gear (T) and Brake Spring (T)

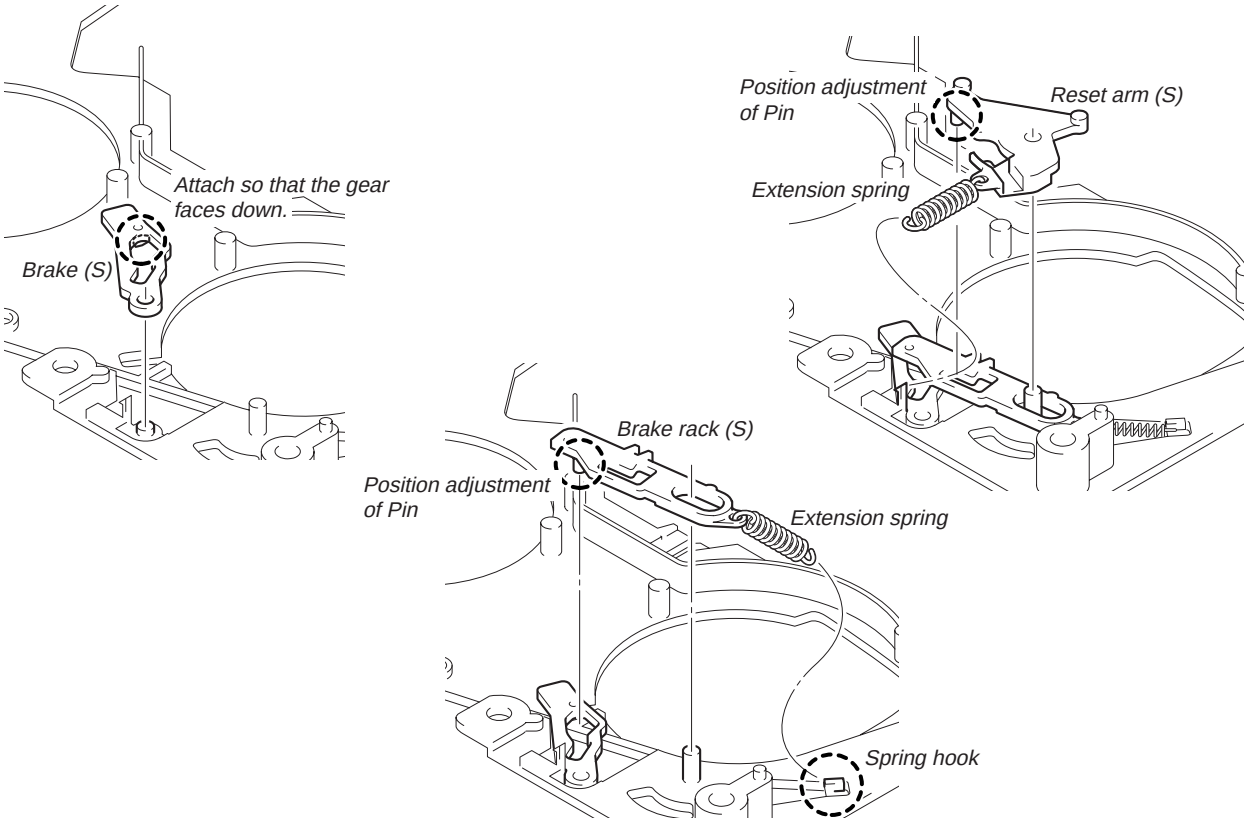
Attaching method :

Insert the brake gear (T) into the brake spring (T), and slide the brake (T) to attach. (Remove in the reverse order.)



***Note** : Be careful not to deform the brake spring (T).*

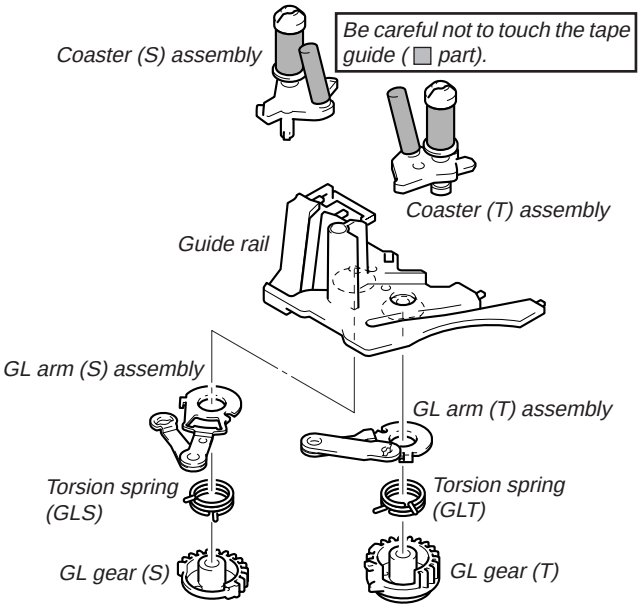
Removal and attachment of Brake (S), Brake Rack (S) and Extension Spring



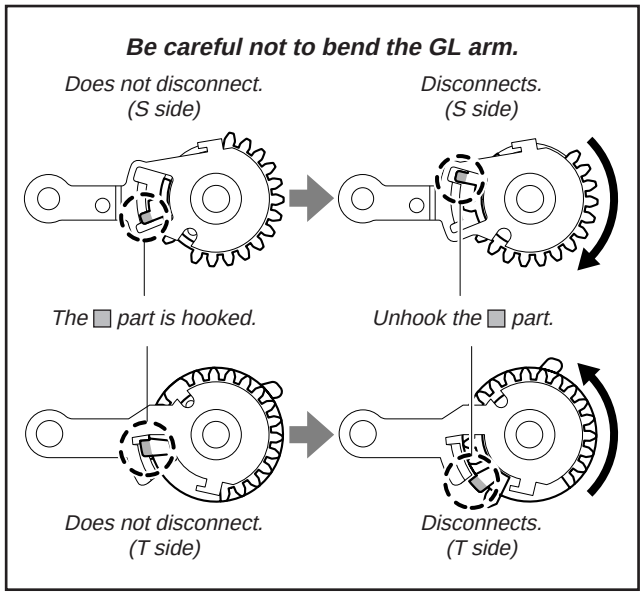
3-13. COASTER (S) / (T) ASSEMBLY, GL ARM (S) / (T) ASSEMBLY, GUIDE RAIL, GL GEAR (S) / (T) AND TORSION SPRING (GLS) / (GLT)

Removing method

• Refer to the detailed diagram on the right, and remove each part.

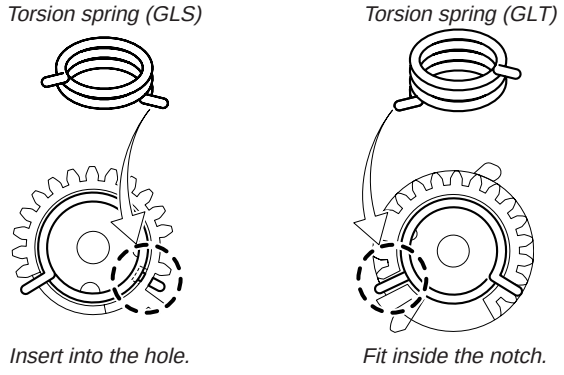


Detailed diagram on removal of GL Arm (S) / (T) Assembly

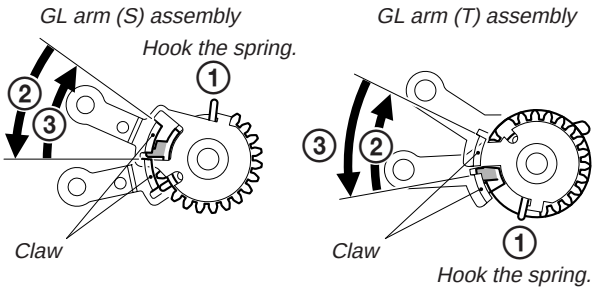

Be careful not to bend the GL arm.
Does not disconnect. (S side)
Disconnects. (S side)
The □ part is hooked.
Unhook the □ part.
Does not disconnect. (T side)
Disconnects. (T side)

Assembling the GL Block Assembly

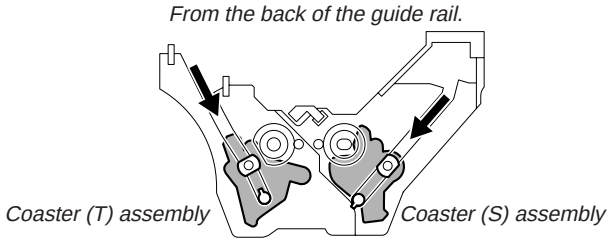
1. Attach the tension coil spring to each gear.
   To differentiate the S side and T side, the side with more coils is the T side. The S side has less coils. Face the ends of the spring towards you, the tip of the coil (lower side) is positioned at the right for the S side and at the left for the T side.



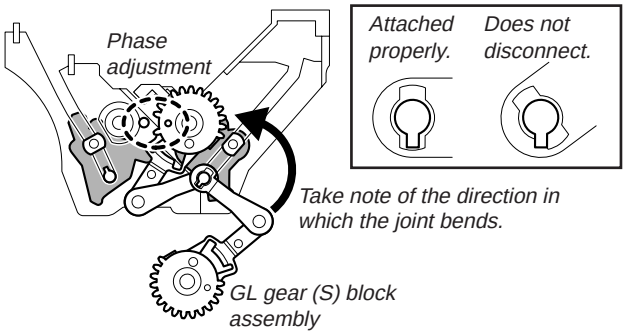
2. Hook the spring to the GL arm, and rotate in the ➡② direction until the claw of the GL arm passes over the □ part, and the □ becomes visible. When the GL arm is completely inserted, the GL arm claw will pass below the □ part by the tension of the spring (➡③).

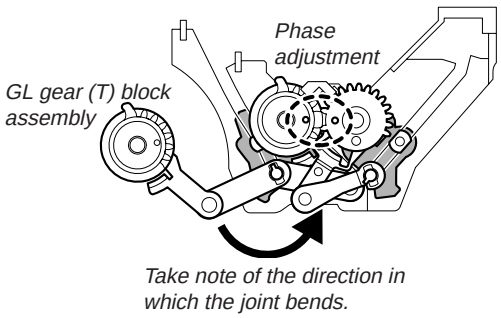


3. Attach the respective coaster assemblies.



4. Attach the GL gear block assembly in the order of the S and T sides.

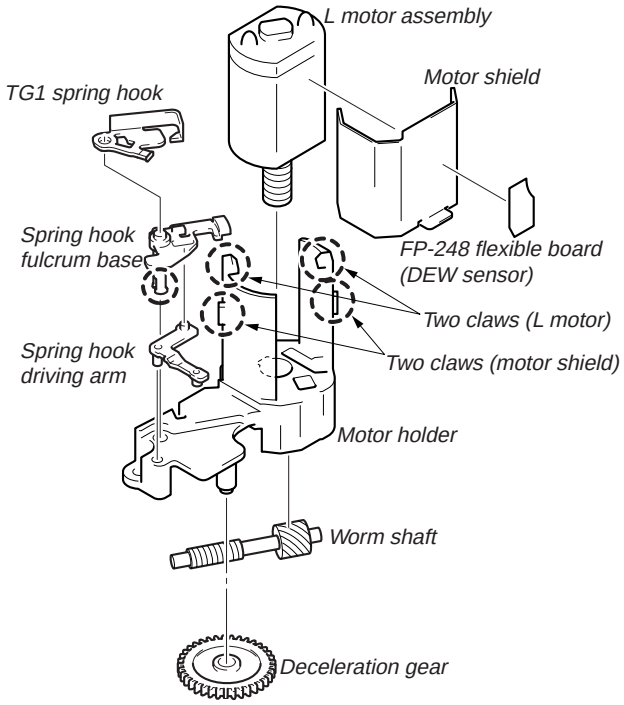

Phase adjustment
Attached properly.
Does not disconnect.
Take note of the direction in which the joint bends.
GL gear (S) block assembly



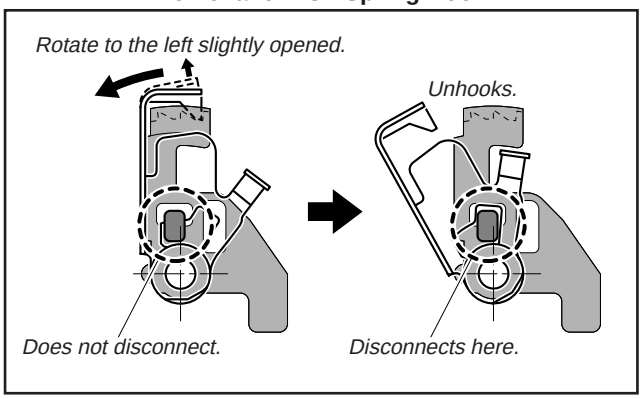
3-14. L MOTOR ASSEMBLY, MOTOR SHIELD, FP-248 FLEXIBLE BOARD, TG1 SPRING HOOK, SPRING HOOK FULCRUM BASE, SPRING HOOK DRIVING ARM, WORM SHAFT, DECELERATION GEAR AND MOTOR HOLDER

Removing method

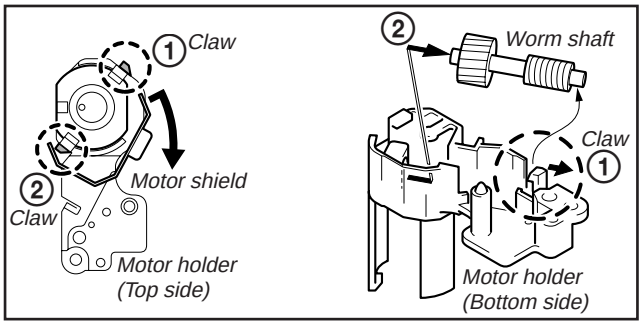
• Refer to the detailed diagram on the right, and remove each part.



Removal of TG1 Spring Hook

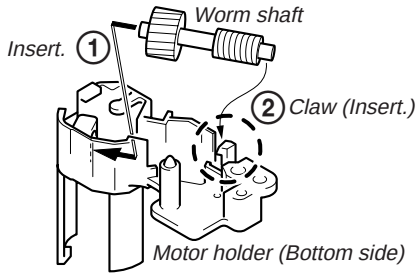


Removal of Motor Shield and Worm Shaft

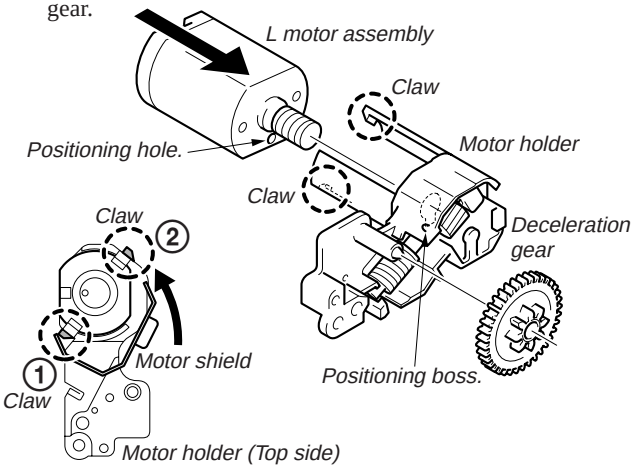


Attaching method

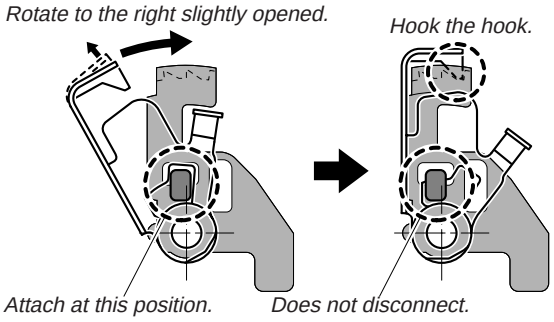
1. Attach the worm shaft.



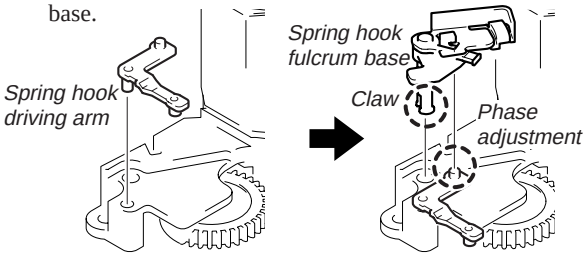
2. Attach the L motor assembly, motor shield and deceleration gear.



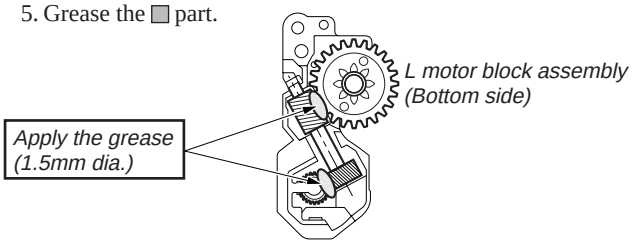
3. Attach the TG1 spring hook to the spring hook fulcrum base.



4. Attach the spring hook driving arm and spring hook fulcrum base.



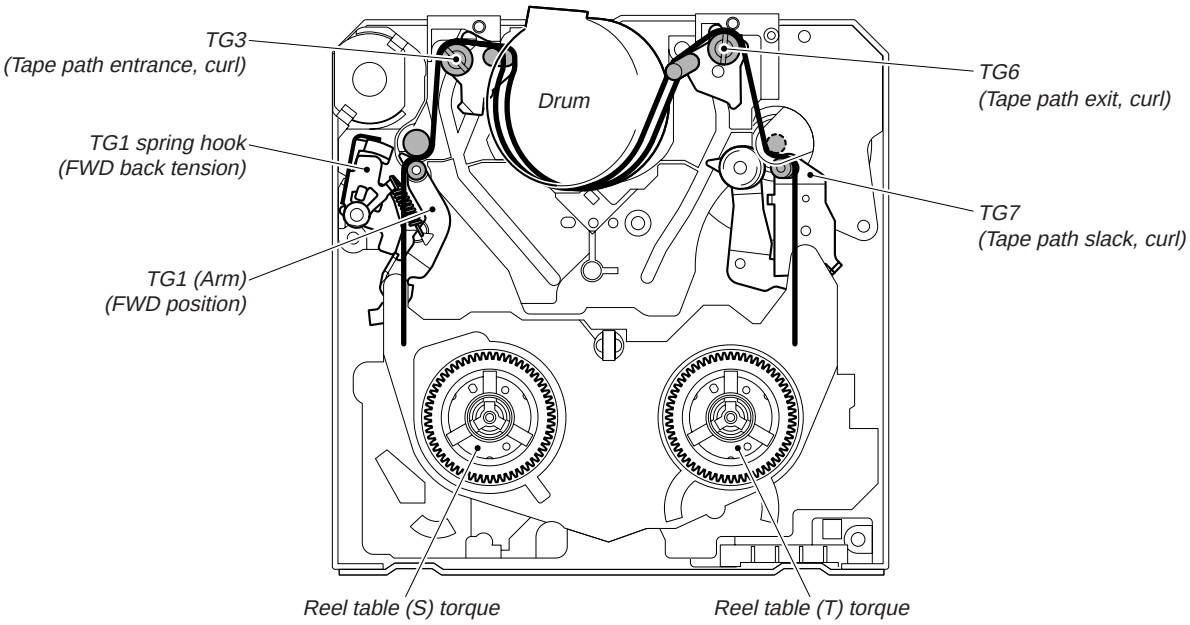
5. Grease the ■ part.



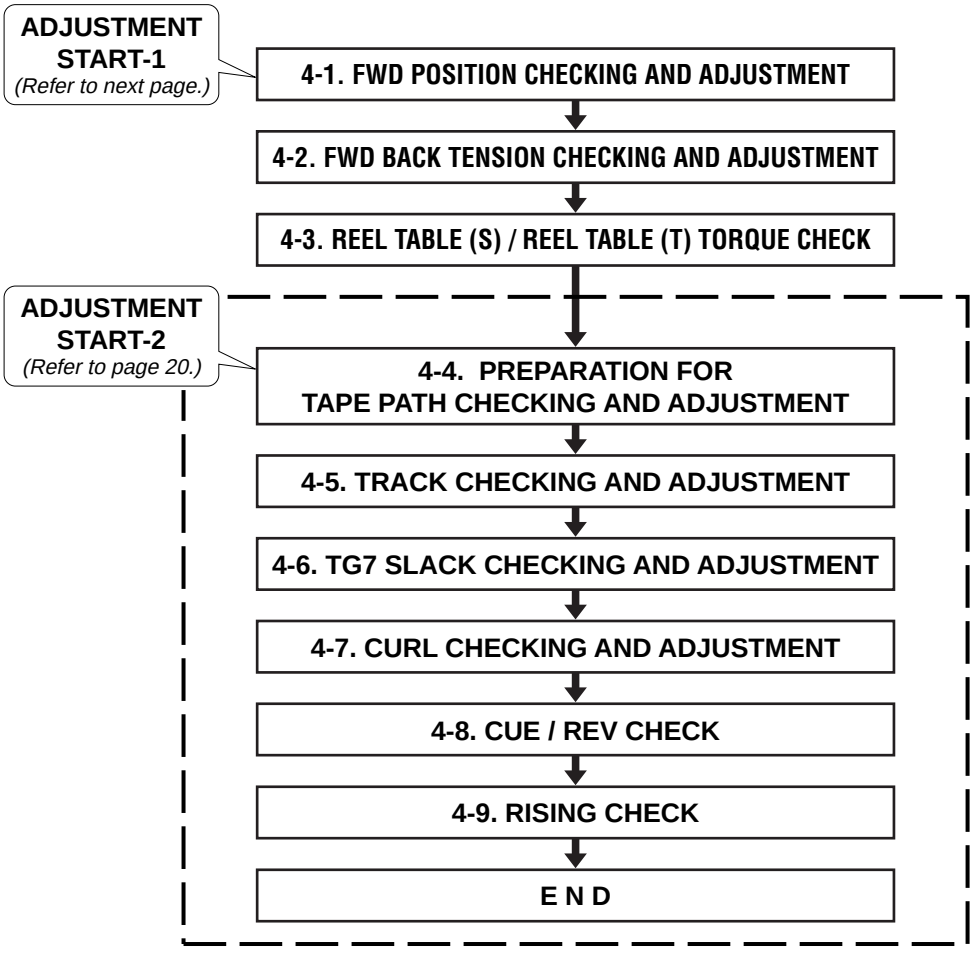
4. CHECK AND ADJUSTMENT

• When the parts of the tape path (tape guide and reel table, etc.) have been removed or parts have been replaced, adjust the following parts and according to the flowchart below.

• ADJUSTMENT POSITION

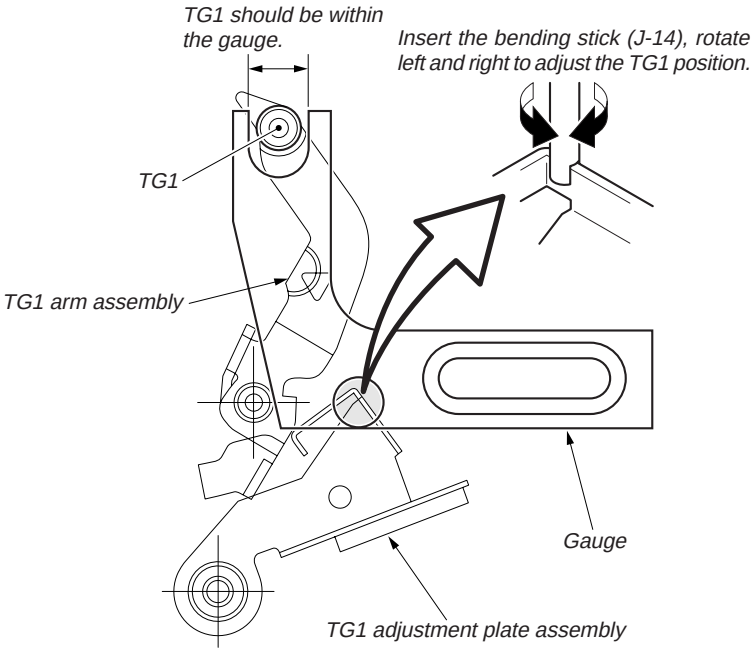


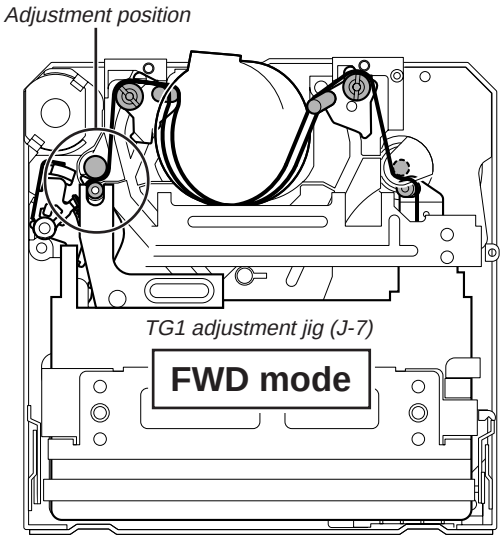
• ADJUSTMENT ORDER (Flowchart)


ADJUSTMENT START-1
(Refer to next page.)
4-1. FWD POSITION CHECKING AND ADJUSTMENT
4-2. FWD BACK TENSION CHECKING AND ADJUSTMENT
4-3. REEL TABLE (S) / REEL TABLE (T) TORQUE CHECK
ADJUSTMENT START-2
(Refer to page 20.)
4-4. PREPARATION FOR TAPE PATH CHECKING AND ADJUSTMENT
4-5. TRACK CHECKING AND ADJUSTMENT
4-6. TG7 SLACK CHECKING AND ADJUSTMENT
4-7. CURL CHECKING AND ADJUSTMENT
4-8. CUE / REV CHECK
4-9. RISING CHECK
E N D

4-1. FWD POSITION CHECKING AND ADJUSTMENT

- **Checking / adjusting method**
  Bend the TG1 adjustment plate with the bending stick (J-14) so that the TG1 flange external circumference, including fluctuation, is within the gauge range while the TG1 adjustment jig (J-7) runs in the FWD mode.

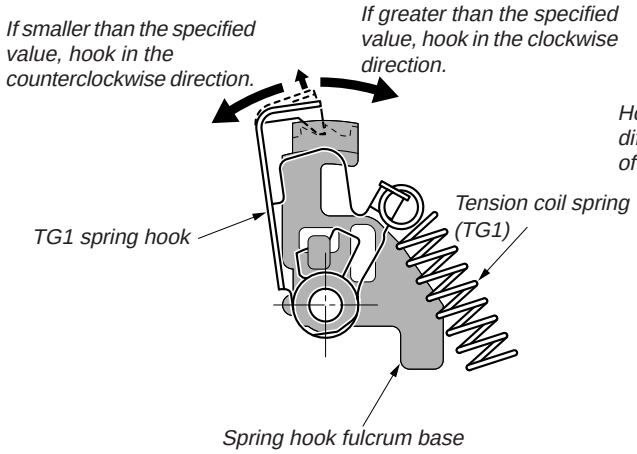

TG1 should be within the gauge.
Insert the bending stick (J-14), rotate left and right to adjust the TG1 position.
TG1
TG1 arm assembly
Gauge
TG1 adjustment plate assembly

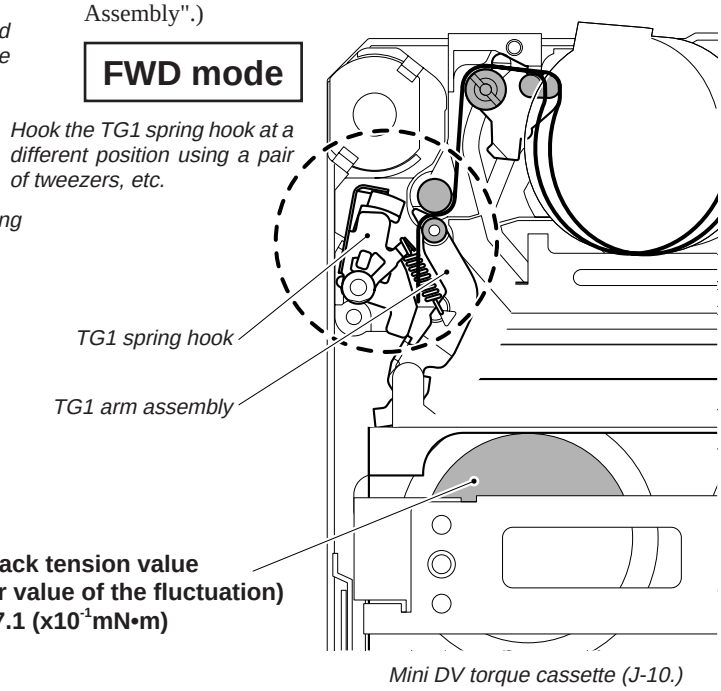


4-2. FWD BACK TENSION CHECKING AND ADJUSTMENT

- **Checking / adjusting method**
  Check the gauge value (reel table (S) side) of the mini DV torque cassette (J-10) in the FWD mode. Adjust the position of the TG1 spring hook so that the gauge value satisfies the specified value. If the specified value is not satisfied, hook the TG1 spring hook claw to the middle position, and check that the FWD position is correct. If not correct, adjust the FWD position again, and check the FWD back tension again.

If the FWD position is correct but the specified value for the FWD back tension is not satisfied, replace the tension coil spring (TG1), and perform this adjustment again.
(For details on how to replace, refer to "3-6. Tension coil spring (TG1)".)
If the fluctuations of the FWD back tension are great and the specified value is not satisfied, replace the reel table S assembly.
(For details on how to replace, refer to "3-4. Reel Table (S) Assembly".)


If smaller than the specified value, hook in the counterclockwise direction.
If greater than the specified value, hook in the clockwise direction.
TG1 spring hook
Tension coil spring (TG1)
Spring hook fulcrum base


FWD mode
Hook the TG1 spring hook at a different position using a pair of tweezers, etc.
TG1 spring hook
TG1 arm assembly
FWD back tension value
(Center value of the fluctuation)
4.9 to 7.1 (x10-1mN•m)

Mini DV torque cassette (J-10.)

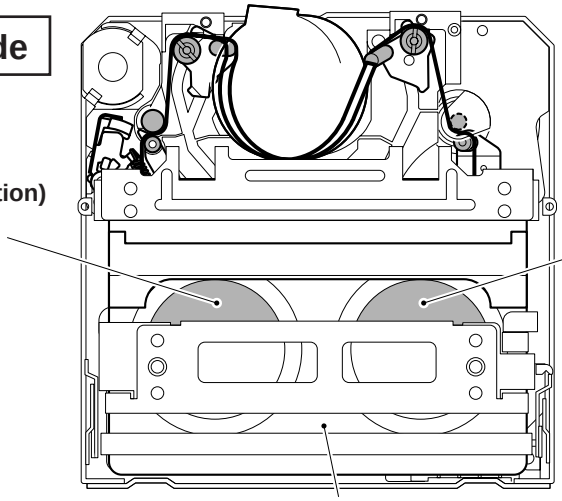
4-3. REEL TABLE (S) / REEL TABLE (T) TORQUE CHECK

- **Checking the Reel table (S) side**
  Check the gauge value (reel table (S) side) of the mini DV torque cassette (J-10) in the RVS mode.

- **Checking the Reel table (T) side**
  Check the gauge value (reel table (T) side) of the mini DV torque cassette (J-10) in the FWD mode.

RVS mode

Reel table (S) torque value
(Center value of the fluctuation)
15.7 to 24.5 (x10^{-1}mN•m)



FWD mode

Reel table (T) torque value
(Center value of the fluctuation)
4.4 to 9.3 (x10^{-1}mN•m)

Mini DV torque cassette (J-10.)

If the specification is not satisfied, check the 4-1 FWD position, and if no problems, replace the respective reel tables, and check again.
(For details on how to replace, refer to "3-4. Reel Table (S) / Reel Table (T) Assemblies".)

4-4. PREPARATION FOR TAPE PATH CHECKING AND ADJUSTMENT

- **Preparations before adjustment 1**
  (Connection and Setting)
  1. Clean the tape running side.
     (Refer to “5-2. Cleaning of Tape Path System”.)

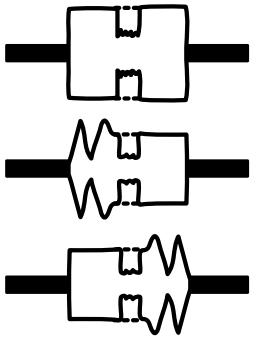
  2. Connect the adjusting remote commander (J-11), and input the setting value of the model.
     The setting value differs according to the model. Refer to the respective service manual.

     For DCR-TRV9/TRV9E
     Page : 3
     Address : 3C
     Data : 07

     Adjusting remote commander (RM-95)

  3. Connect an oscilloscope.
     The connecting state differs according to the model. Refer to the respective service manual.

  4. Play the tracking tape (J-9) (Exclusive), and check the states at the entrance and exit of the RF waveform. If not flat at either side, perform the adjustments from “Flowchart Adjustment start-2” on page 18.

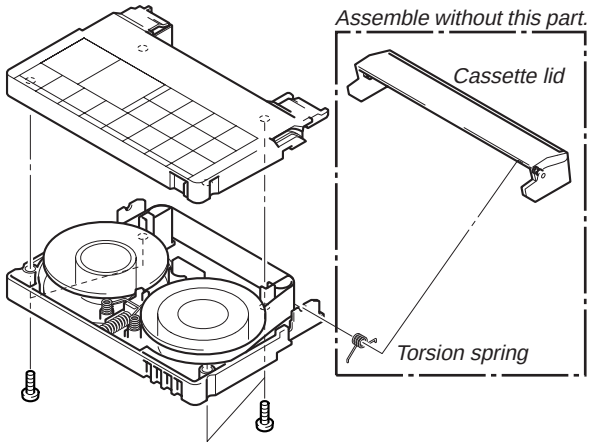


Normal

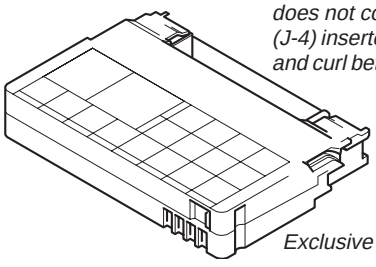
Faulty entrance side

Faulty exit side

- **Preparations before adjustment 2**
  (Preparing an exclusive tracking tape (J-9))
  Remove the lid of the cassette due to the C mechanism structure.



This is to prevent the lid from rising when the damper is removed so that it does not come in the way of the mirror (J-4) inserted, when checking the slack and curl between the capstan and TG7.



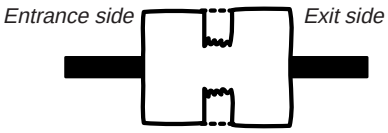
Exclusive tracking tape

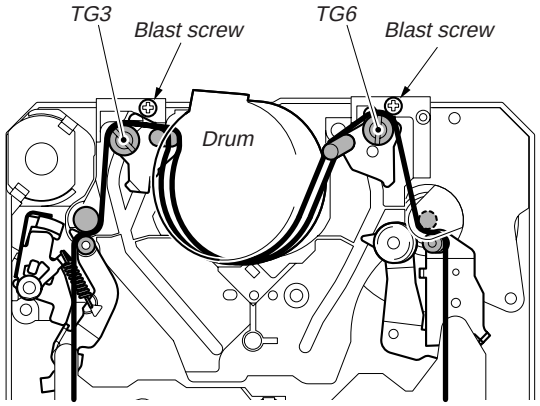
4-5. TRACK CHECKING AND ADJUSTMENT

- **Checking / adjusting method**
  Run the tracking tape (J-9) in the PLAYBACK mode, and check that the RF waveform is flat at both the entrance and exit.

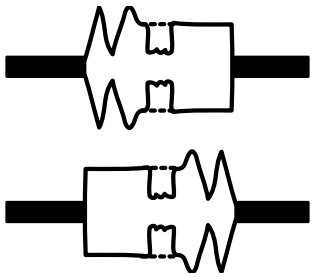
PLAY mode

Normal waveform

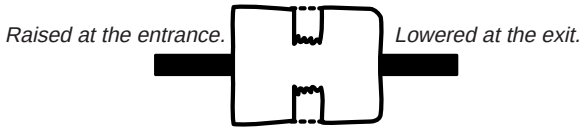




- **If not flat**
  If the waveform at the entrance is bad, rotate TG3.
  If that at the exit is bad, rotate TG6 to flatten the waveform.



- **Tips for adjustment**
  The tape path waveform at the entrance and exit should both be flat, or that at the entrance should be slightly raised and that at the exit should be lowered. If that at the entrance is slightly lowered especially, problems such as sound drop may occur.



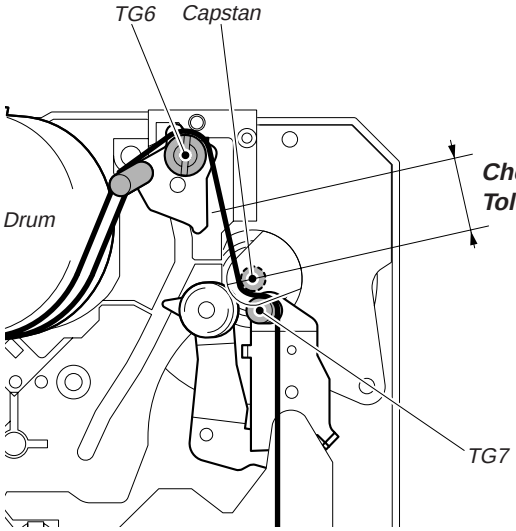
If the waveform does not become flat even if the guides are rotated at the entrance and exit, the characteristics may be faulty of the tracking tape with time. Check again using a new tracking tape. If the waveform still does not become flat, the coaster assembly and drum base block assembly may be faulty.
(For details on how to replace, refer to “3-2. Drum Base Block Assembly or 3-9. GL Block Assembly” .)

4-6. TG7 SLACK CHECKING AND ADJUSTMENT

- **Checking / adjusting method**
  Run the tracking tape (J-9) in the REV mode, and visually check from right above the slack between the capstan and TG6. If the slack is great, rotate TG7 to satisfy the specified value.

- **If the slack occurs**
  If the slack can not be corrected, the TG7 arm block assembly may be faulty.
  (For details on how to replace, refer to “3-6. TG7 Arm Block Assembly”.)

REV mode

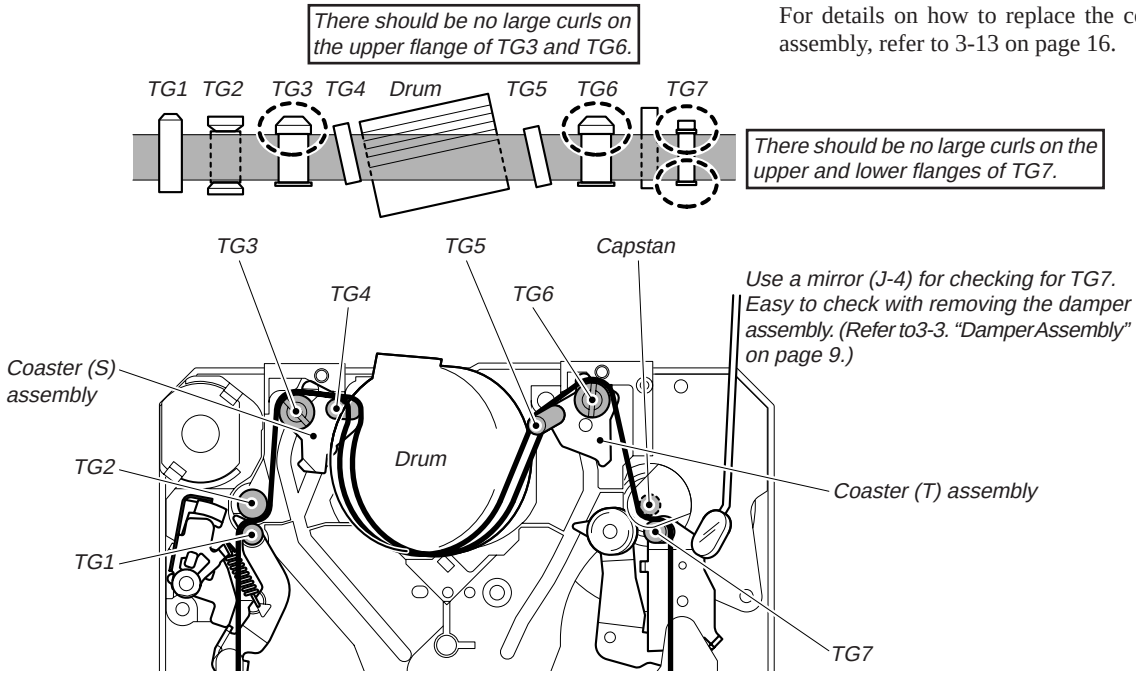


Check the slack between here.
Tolerance : ±0.3 mm (Visually)

4-7. CURL CHECKING AND ADJUSTMENT

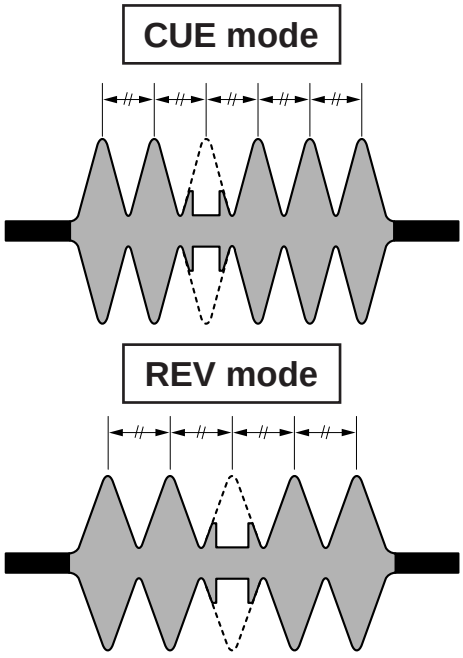
- **Checking / adjusting method**
  Run the tracking tape (J-9) (exclusive) in the CUE mode or REV mode, and check that the tape runs along each flange.
  Also check that there are no large curls on each tape guide.

- **If the curl is large or there are clearances**
  If the TG3 curl is large or clearances exist, replace the coaster (S) assembly. If the TG6 curl is large, or clearances exist, replace the coaster (T) assembly. If curls or clearances exist on the TG7, rotate TG7 and adjust its height.
  Note : Be careful not to rotate TG7 excessively.
  For details on how to replace the coaster (S) / (T) assembly, refer to 3-13 on page 16.



4-8. CUE / REV CHECK

- **Checking method**
  Run the tracking tape (J-9) in the CUE mode or REV mode, and check that the intervals of the waveform peaks are consistent.



- **If not even**
  If the waveform peaks are not even, perform "Tracking adjustment" again.

4-9. RISING CHECK

- **Checking method**
  Check that when the tracking tape (J-9) is switched from the STOP, CUE, REV, FF, REW modes to the PLAYBACK mode, the waveform rises horizontally within 2 seconds.
  Perform this 2 or 3 times.

Mode changes

STOP	➡	PLAYBACK
CUE	➡	PLAYBACK
REV	➡	PLAYBACK
FF	➡	PLAYBACK
REW	➡	PLAYBACK

When switching the modes, the waveform should rise within 2 seconds 2 or 3 times.

- **Check after checking rising**
  - Check that the tape loads and unloads smoothly.
  - Play a self-recorded or already recorded tape, and check that the sound and images are normal.

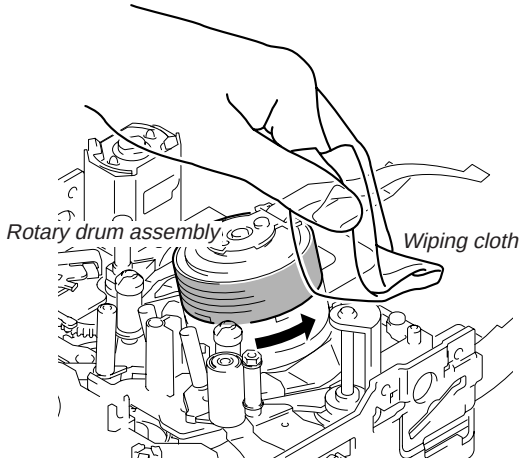
5. PERIODIC CHECK

• Carry out the following maintenance and periodic checks not only to fully display the functions and performance of the set, but also for the equipment and tape. After repairing, service the set as follows, regardless of the length of use.

5-1. CLEANING OF ROTARY DRUM ASSEMBLY

1. Press a wiping cloth (J-2.) moistened with cleaning fluid (J-1.) against the rotary drum assembly gently, and clean it while rotating the rotary drum assembly slowly with your finger in the counterclockwise direction.

Note : Do not rotate the motor on power or rotate the rotary drum assembly in the clockwise direction with your finger. The head tip will also be damaged if the wiping cloth is moved perpendicularly against it. Therefore, be sure to follow the above instructions when cleaning the rotary drum assembly.

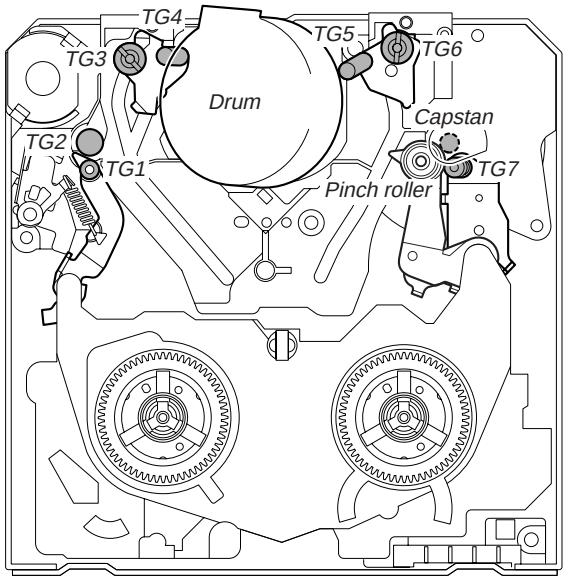


5-2. CLEANING OF TAPE PATH SYSTEM

1. Clean the tape path systems (TG1 to TG7 and capstan) and the lower drum using a super fine applicator (J-3.) moistened with cleaning fluid.

Note : Make sure that no oil or grease of the link mechanisms sticks to the super fine applicator (J-3.).

Note : Do not use a applicator moistened with alcohol to the other guide cleaning. But clean the pinch roller using alcohol.



5-3. PERIODIC CHECKS

Location of Maintenance and Check		Hours of Use (H)										Remarks
		500	1000	1500	200	2500	3000	3500	4000	4500	5000	
	Cleaning of tape path surface.	○	○	○	○	○	○	○	○	○	○	Be careful of the oil.
	Cleaning and degaussing of rotary drum assembly.	○	○	○	○	○	○	○	○	○	○	
Driving system	Timing belt	—	□	—	□	—	□	—	□	—	□	Make sure that no oil gets on the tape path surface.
	Capstan (Bearing)	—	□	—	□	—	□	—	□	—	□	
	Loading motor	—	□	—	□	—	□	—	□	—	□	X-3948-346-1
Performance Confirmation	Abnormal noise	□	□	□	□	□	□	□	□	□	□	
	Back tension measurement	—	□	—	□	—	□	—	□	—	□	
	Brake system	—	□	—	□	—	□	—	□	—	□	
	FWD / RVS torque measurement	—	□	—	□	—	□	—	□	—	□	

Note : When overhauling, refer to the checks above and replace parts. ○ : Cleaning □ : Confirmation

Note : Greasing
Always use the specified grease. If the viscosity differs, various problems may occur.
(Use SG-941 for all parts of the C mechanism.)

Check the quantity of grease when installing the parts which is needed to apply the grease.

• FLOIL (SG-941) : Part No. 7-662-001-39

9-974-050-11

Sony Corporation
Parsonal A&V Product Company

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DV MECHANICAL ADJUSTMENT MANUAL Ⅳ

1999.10

C MECHANISM

Mini DV Digital Video Cassette

SUPPLEMENT-1

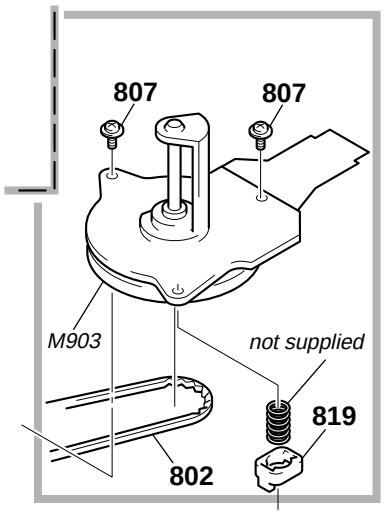
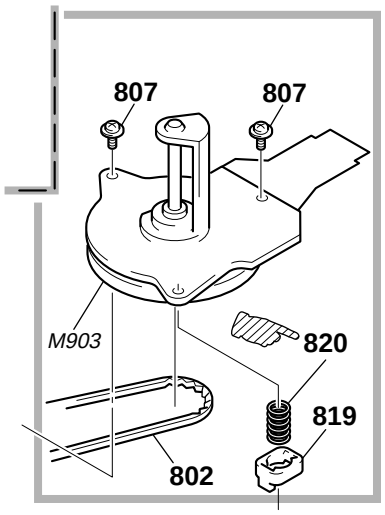
File this supplement-1 with your Mechanical adjustment manual.

(99-020)

CHANGE OF SUPPLIED PART

Page 5

1-3. EACH GEARS AND LOADING / CAPSTAN MOTOR ASSEMBLY

INCORRECT	CORRECT
	

Ref. No.	Part No.	Description	Remark

Ref. No.	Part No.	Description	Remark
820	3-051-787-02	SPRING (CAP), COMPRESSION COIL	

: Changed portion

Digital MECHANISM

SONY

9-974-050-82

Sony Corporation
Personal VIDEO Products Company

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